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THE UNIVERSITY OF ALBERTA
THE WAGE DECISION PROCESS AND COLLECTIVE BARGAINING

by



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A THESIS

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The undersigned certify that they have read,
and recommend to the Faculty of Graduate Studies for
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the degree of Master of Business Administration.

ABSTRACT

The Wage Decision Process and Collective Bargaining

This thesis centers on the wage decision-making process and its relationship to industrial strife and the state of the economy. Such a topic is thought to be a timely one in view of the costs associated with industrial strife, particularly the strike, and the implementation of wage guidelines by many countries in an attempt to add economic logic to the wage decision process.

The analysis of the wage decision process is effected through the development of a list of variables or factors deemed to represent the totality of influences taken into account in arriving at wage decisions. These factors serve as the base from which the following specific purposes are achieved.

The primary purpose of the thesis is to examine the relationship, if any, between the wage decision-making process and its contribution to industrial strife. The results indicate that a strong relationship exists between the degree to which the union and management representatives for each of the agreements in question, have common acceptance regarding the identification and relative rating of the factors which govern each of their decisions and the degree of strife arising from negotiations. The

interdependence established is an inverse one. The higher the concurrence as to the acceptance of the factors, the lower the degree of strife.

The second purpose of the thesis is to determine the impact, if any, of the union on managements' wage decision process. It is found that the union does have an impact on the management decision process in that it causes management to give a more balanced consideration to the factors influencing their decisions. The management decision becomes one of greater complexity because more factors must be juggled simultaneously in arriving at the wage decision.

The third and final purpose of the thesis is to determine the degree to which the wage decision appears to take into account the state of the economy. Since economic factors, especially those devoid of ethical bases, do not serve as the primary criteria for management or the union in the determination of wage levels for the agreements in question, it appears that wage decisions are not made in light of changes in the state of the economy.

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Similarly, thanks is due to the many governmental and industrial officials from whom expertise in the field of collective bargaining was forthcoming. Certainly, it was only with the help of all of the aforementioned that the purposes of the thesis were achieved.

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INTRODUCTION

Nature and Purpose of the Study

It is with a light heart that the worker brings home his latest pay cheque, one which he thinks has been greatly increased through his source of power--the union. Now he can make the best of life. Nagging doubts related to past purchases fade from memory. In the face of his elation, who can decry the importance of the union as a moving force within the firm and the economy?

This headiness of success evaporates, however, when he finds the costs of enjoying his favourite beer or cigar have correspondingly increased. Perhaps the union should have asked for more. Perhaps that threatened strike should have been activated. Such hindsight may lead to thoughts of retribution. Next time the union will really have to gain an increase and all means will be used in accomplishing this end. Thus continues the cycle.

Although the unionized worker may feel that his union has at least managed to keep pace with price increases, the worker not cradled in the protective womb of the union has no reason to feel that his buying power is similarly protected. In fact, he often feels that it is the union's impact on wages, reflected in higher prices, that has left him in dire economic straits.

This concern over rising wage levels and their relation to rising prices has not gone unnoticed by governmental officials. The union's impact on the economy has been of central interest to governments the world over. It appears that many governments have perceived a positive link between the rising cost of living and the results of union induced wage settlements. For example, the introduction of wage guidelines by many countries supports the view that the collective wage determination process is related to price changes and inflation.¹

In a like manner, the process of effecting the wage decision itself has been the focus of similar concern. Industrial strife, particularly the strike, emanating from impasses reached during the wage determination process, is not without cost. For example, interruptions in the work process may lead to reductions in the demand for domestic input materials or result in the loss of foreign markets due to inability to supply. Both situations may have a major impact on the state of the economy as a whole. Various approaches designed to reduce the frequency of

¹Britain is an example of a country which has adopted a wage-price guidepost philosophy as discussed by David C. Smith in Incomes Policies--Some Foreign Experiences and their Relevance for Canada, Special Study No. 4, prepared for the Economic Council of Canada (Ottawa: Queen's Printer and Controller of Stationary, 1966), pp. 95-123. Canada has also, on occasion, considered the use of wage-price guidelines. New York Times (New York), Sept. 9, 1966, p. 17.

strikes, such as compulsory arbitration, attest to the costs of such industrial unrest.²

The examination by economists of the nature of the economic impact of the union on wage levels has not led to unanimous conclusions. At the national level, many economists argue that the results of the bilateral wage decision differ little in terms of real economic impact from those of the unilateral management decision.³ Conversely, others extract statistics which they claim provide evidence of a measurable impact of the union on the economy.⁴ Although the findings of the economists vary

²For example, Australia has attempted to reduce strife, particularly the strike, through the adoption of compulsory arbitration. The Pros and Cons of Compulsory Arbitration (Cleveland, Ohio: The Brotherhood of Railroad Trainmen, 1965), pp. 40-44.

³For example, Stephen G. Peitchinis, in The Economics of Labour: Employment and Wages in Canada (Toronto: McGraw-Hill Company of Canada Limited, 1965), p. 269 and pp. 378-83, indicates that labour's share of national income has remained relatively stable over time, regardless of union activity, thus attesting to the negligible impact of the union. George Saunders supports this conclusion in Wage Determination in Canada, Occasional Paper No. 3, Economics and Research Branch, Department of Labour, Canada, April, 1965 (Ottawa: Queen's Printer, 1965), pp. 41-42, where he describes the primacy of economic influences as opposed to institutional influences on wages. Accordingly, he states that ". . . wage movements do not appear to have exerted a serious push on prices." Similarly, Lloyd G. Reynolds in "The Impact of Collective Bargaining on the Wage Structure of the United States," The Theory of Wage Determination, ed. by John T. Dunlop (London: Macmillan, 1957), ch. 13, states that ". . . unions ride the coattails of oligopoly quite effectively in some branches of heavy industry, but their status is still that of a junior partner rather than a prime mover."

⁴Arthur M. Ross ascribes to the impact of the union in Trade Union Wage Policy (Berkeley and Los Angeles: University of California Press, 1953), pp. 132-33, with

with respect to the consequences of the bilateral wage decision, few question the impact of the union in terms of the costs associated with industrial strife, particularly the strike.⁵

These two issues, the impact on wage levels and the impact of stoppages, embrace the subjects toward which this paper is directed. To date most attempts to throw light on these issues have been investigated through the analysis of wage statistics and their relation to past wage decisions.⁶ That is, the approach focuses primarily on the results of the wage decision process. The approach adopted for this paper focuses on the wage decision process itself and attempts to draw conclusions relating the process to results.

Specifically, the purposes of this paper are to:

1. examine the relationship, if any, between the wage decision-making process and its contribution to

evidence that earnings have advanced more sharply in highly organized industries than in less unionized industries. Similarly, Charles E. Lindblom, among others, is referred to as an articulator of the economic impact of the union by Clark Kerr in "The Impacts of Unions on the Level of Wages", The American Assembly. Report of the Fifteenth Assembly. Wages, Prices, Profits and Productivity (New York: Columbia University, 1959), pp. 92-93.

⁵For a searching study of the impact of the strike in a specific industry, the reader is directed to Neil W. Chamberlain and Jane Metzger Schilling, The Impact of Strikes: Their Social and Economic Costs (New York: Harper and Brothers, 1954).

⁶For example, such statistics are the bases of the conclusions reached by the economists referred to in footnotes 3 and 4.

industrial strife. An understanding of this relationship is a prerequisite to the development of positive means of reducing such strife;

2. determine the impact, if any, of the union on management's wage decision process. Information on such an impact is relevant to the cases advanced by those who either deny or support the existence of union impact on wages; and,

3. determine the degree to which the wage decision process appears to take into account the state of the economy. Such information would greatly assist in the determination of the need for a formal means of influencing the wage decision in a manner congruent with the economy's needs.

Since the paper is concerned with the wage decision-making process and its results, a primary task falling to the investigator centers on the determination of the variables or factors taken into account in arriving at such decisions. That is, on what factors does the wage decision depend? Accordingly, the study proceeds from an analysis of the factors influencing wage decisions. The factors are categorized broadly into two main groups termed economic and noneconomic factors. The economic factors are further divided into those upon which decisions are made on purely economic terms such as the ability to pay factor and those containing ethical undertones or subjective values such as the living wage factor. Examples of noneconomic factors

are worker morale and public opinion. The isolation and definition of these factors, all of which are reviewed at length in Chapter Two, are designed to operationalize the analysis of the wage decision-making process and serve as the base upon which the purposes of the paper are attained.

Similarly, it is necessary to develop a method through which the purposes of the study can be dealt with on an empirical basis. Such is the task of the following hypotheses.⁷

The first of the three purposes of the study, to establish a relationship, if any, between the wage decision-making process and its contribution to strife, was operationalized using the following hypothesis:

1. If the management and union representatives participating in the negotiation of a particular wage agreement have common acceptance regarding the identification and relative rating of the factors which govern each of their decisions, such agreement is reached with a minimum of strife.

The second purpose, the impact of the union on management's decision process was tested with the aid of the following hypothesis:

⁷The importance of hypotheses in empirical work cannot be overemphasized for they are the working instruments of theory. For a good review of the importance of problems and hypotheses in research the reader is directed to Fred N. Kerlinger's Foundations of Behavioral Research (New York: Holt, Rinehart and Winston, Inc., 1964), pp. 22-24.

2. Management representatives operating within a framework of collective bargaining place a different emphasis on particular factors and tend to rank economic factors, especially those devoid of ethical undertones, lower than do representatives operating within a system of unilateral wage determination.

Finally, in order to examine the degree to which wage decisions, in general, are based on factors congruent with the state of the economy, it is hypothesized that:

3. Economic factors, especially those devoid of ethical bases, do not serve as the primary criteria for management or the union in the determination of wage levels.

These three hypotheses were tested with the aid of data obtained on a questionnaire administered in forty-four case situations, under both unilateral and bilateral wage determination conditions, within the Province of Alberta.⁸ Thirty of the returns were obtained from fifteen organizations which operated under a collective bargaining system. These organizations come from such varied sections of the economy as the construction industry; the manufacturing industry; transportation, communication, and other utilities; trade; community, business, and personal service industries; and public administration and defence.⁹ In addition, fourteen

⁸The study is confined to the Province of Alberta.

⁹The categorizations are those of the Canadian Dominion Bureau of Statistics, Standard Industrial Classification Manual (Ottawa: Queen's Printer, 1960).

of the returns were obtained from nonunionized organizations and were selected for comparison purposes in order to test the second hypothesis.

Since the study is limited to the Province of Alberta, generalizations with respect to the results of the study are minimal due to the lack of evidence as to the existence of a homogeneous universe of firms in the province.¹⁰ As a result and in order to conform to the following criteria, case situations were specifically chosen rather than randomly selected. The organizations represent significant groups of employees (largely over fifty in number), come from diverse geographical regions within the province, and had concluded new agreements or adjusted wages within one year of the period of data collection (May-June, 1969). In addition, in order to test the first hypothesis, organizations under collective bargaining were selected that had reached agreement accompanied by all levels of strife.

A note on the measurement of strife is required. Such a measurement was difficult to operationalize but as Shister states, "It may . . . be feasible to devise a quasi-quantative concept [of strife] by concentrating on those aspects of the relationship which lend themselves to

¹⁰The selection of a diverse sample of organizations ameliorates this deficiency to some degree for, as Kerlinger points out, if the researcher extends his investigations to different kinds of samples and gets similar results despite the nonrandomness of the sample, his conclusions are strengthened. Kerlinger, Foundations of Behavioral Research, p. 181.

quantification . . ."¹¹ For purposes of this study, strife was designated on a quantitative linear basis by the level of formal procedure, outlined in the Alberta Labour Act, required by the parties to effect an agreement; commencing with early agreement not requiring formal steps and terminating with the ultimate sign of strife--the strike.¹²

The data on each bilateral case situation were obtained from the management and union negotiating officials who participated in the collective agreements in question. The data for unilateral cases were obtained from the company official responsible for setting wage rates. Data were collected with the aid of a questionnaire identifying the factors influencing wage decisions. The questionnaire also contained a measuring device, the graphic rating scale technique, with which each representative could rate the relative importance of and the degree to which each factor

¹¹Joseph Shister, "Collective Bargaining," in A Decade of Industrial Relations Research 1946-1956, ed. by Neil W. Chamberlain, Frank C. Pierson, and Theresa Wolfson (New York: Harper and Brothers Publishers, 1958), p. 46. The specific reference to strife, found in brackets in the quotation has been added to clarify the context of the sentence.

¹²One significant measure of industrial conflict or strife is the number of strikers in relation to the number of union members. Arthur M. Ross and Paul T. Hartman, Changing Patterns of Industrial Conflict (New York: John Wiley & Sons, Inc., 1960), p. 4. Although this measure is discussed in macro terms by Ross and Hartman, the concept of the strike as a measure of strife was applied, for purposes of this paper, to the micro level.

influenced his wage decisions for the particular wage agreements and adjustments in question. At the outset, each representative was interviewed in order to arouse interest and cooperation, to obtain information relevant to the context within which his decisions were made, to explain the purposes of the study and the questionnaire, and to outline what was expected of him. The questionnaire was left with the representative for his consideration and returned to the investigator at a later date. The latter approach was necessitated in view of the length of the factor list which required examination at the respondent's convenience.

Upon receipt of the returns, the factor ratings of the union and management representatives were correlated for each organization. These relationships were then correlated with the degree of strife arising from that particular bargaining process. Where union and management differed (low or negative correlations) as to the relative importance of the factors there should have been a tendency to dispute. Hence a negative and significant correlation should exist between the degree to which union and management representatives corresponded on relative ratings and the degree of strife found. Such a finding would substantiate the first hypothesis.

A correlation of the combined ratings of management representatives under collective bargaining with that of the combined ratings of management representatives not under

collective bargaining determines the degree to which they differ. If, as proposed by the second hypothesis, they are not similar, the correlation will be very small or negative. A further test entailed an examination of both ratings in order to isolate the relative importance both groups attach to economic factors.

Finally, the relative importance of the economic factors to all parties, prescribed by the third hypothesis, was tested through an examination of the combined ratings of all union and management representatives.

The Impact of Collective Wage Decisions

Statistics can be used to prove or disprove the impact of the union on wage decisions. However, when viewed in relation to the activities of many countries over the last few decades, particularly with respect to anti-inflationary measures and attempts to negate the use of the strike, the impact of collective bargaining appears difficult to deny.

Governments the world over have been plagued with the effects of inflation¹³ and the costs of industrial

¹³Inflation is often defined as a rise in the price level, that is a depreciation of the monetary unit. Bronfenbrenner and Holzman point out that this is not the only definition of inflation; however, all definitions cited by them imply that an inflationary process occurs when active claims for shares in the real national product, expressed either in terms of expenditure--or income--demands, exceed the amount that is produced. Martin Bronfenbrenner and Franklyn D. Holzman, "Survey of Inflation Theory," The American Economic Review, LIII (September, 1963), 597-640.

strife. Economists argue that inflation has caused countries to price themselves out of the world's export markets,¹⁴ as well as having pronounced internal implications upon the purchasing power of people with fixed monetary incomes.¹⁵ Costs of conflict in the form of strikes have been equally oppressive. The repercussions of a struck firm suspending operations are felt throughout the relevant supplier market as well as the consumer market and, consequently, reverberate throughout the economy.¹⁶

For those who hold to the theory of cost-push inflation, the main reason perpetual inflation exists is because of the power of unions to extract wage and salary increases that are not congruent with economic reality. The settlement of the Seaway Worker's strike of 1966, which provided for a thirty per cent increase in base rates for Seaway Workers over a two year period, is an often cited example of the inflationary wage-push of unions in Canada.

¹⁴If a country allows its costs and prices to be inflated to a much greater degree than those of its customers or competitors, its export trade will suffer, thereby affecting its balance-of-payments and ability to buy imports according to Thomas Wilson in Inflation (Oxford: Basil Blackwell, 1961), pp. 79-80.

France is a recent example of a country sagging under the burden of an inflationary wage-price spiral. Time (Canada Ed.), November 29, 1968, p. 30.

¹⁵Paul Enzig, Inflation (London: Chalto and Winder, 1952), p. 137.

¹⁶Chamberlain and Schilling, The Impact of Strikes, pp. 8-9.

Furthermore, the settlement tended to serve as a benchmark to be attained by all unions in subsequent bargaining from coast to coast. The strike preceding settlement had equal impact. Although it occurred in the Great Lakes region, the halted shipments affected virtually every section of the country.

The attempts by most countries to contain inflation focus primarily on the process of collective wage determination. Many economists argue that the main defense against inflation is the control of monetary demand conditions. However, anti-inflation policy is constrained by factors other than the ability to control these conditions such as the price of imports and the balance-of-payments situation. This method of curbing inflation is also unattractive because it may conflict with a possible full employment objective. Hence, many countries have adopted the anti-inflationary approach of incomes policy (also referred to as wage-price guidelines), complementary to monetary policy, in order to regulate the rate of price increases without jeopardizing high employment levels.¹⁷

The Government of Canada apparently has the use of incomes policy under consideration, but other countries have been far less reticent. For example both Great Britain and the United States have adopted wage-price guidelines

¹⁷For a discussion of the advantages and disadvantages of several anti-inflationary policies, the reader is directed to Smith's Incomes Policies, pp. 21-40.

and enforce them with formal sanctions and, where necessary, exercise legislative prerogative in order to ensure compliance.¹⁸ Britain has, in the past, applied "wage-freeze" tactics while the United States has opted for a less restrictive "guideline" in the neighborhood of 6.5 per cent.¹⁹ In addition, both countries have also found it necessary to intervene in the negotiations of contracts which may have major economic impact or in strategic or essential industries in order to curtail the use of the union's ultimate source of power--the strike.²⁰

In 1966, the Canadian Finance Minister rejected the use of formal guidelines in favour of the strength of informed public opinion.²¹ Although the same government decided to develop plans for wage-price guidelines in 1967,²² only occasional guideline comment has been issued from Ottawa and it appears to have had relatively little effect on the parties to collective bargaining.²³

¹⁸President Kennedy's move to initiate sanctions against the steel industry when it appeared to ignore wage-price guidelines in 1962 is an example of ensuring conformance. Bevars D. Mabry, Labor Relations and Collective Bargaining (New York: The Ronald Press Company, 1966), pp. 290-91.

¹⁹New York Times (New York), Jan. 27, 1967, p. 1.

²⁰The reader is directed to Chapter 17 of Mabry's Labor Relations and Collective Bargaining for examples of the handling of emergency disputes.

²¹New York Times (New York), Sept. 9, 1966, p. 17.

²²Ibid., Feb. 20, 1967, p. 2.

²³Malcolm L. Denise makes this point in "Comments on

The Province of British Columbia has taken a more positive stand with respect to nonmonetary anti-inflationary measures (monetary policy is outside a province's terms of reference). In the belief that many collective agreements were not recognizing the economic facts of life the province recently established a mediation board, the prime function of which is to regulate wage increases in a way which is congruent with the province's economic growth. This control device also embodies the latent power to effectively restrain the use of the strike.

The source of such governmental concern, the process of collective wage determination, forms the core of this paper. Consequently, a slight digression into definitive literature associated with collective bargaining appears warranted.

Collective bargaining has been characterized by several authors in a variety of ways. Dunlop and Healy identify four caricatures of the process including likening it to a debating society, depicting it as power politics, calling it a poker game, and describing it as a rational process in which the parties are persuaded to alter their original positions by the facts and arguments presented by the opposite side.²⁴ Chamberlain sees it as a means of

Changing Trends and Concepts in Collective Bargaining," Labor Law Journal, XVII (December, 1966), 727.

²⁴John T. Dunlop and James J. Healy, Collective Bargaining: Principles and Cases (Revised ed.; Homewood, Ill.: Richard D. Irwin, Inc., 1955), p. 53.

contracting the sale of labour--cooperative marketing of labour, a form of industrial government--grievance handling, and a method of management--a procedure for making business decisions.²⁵ Each category is a characterization of what collective bargaining is and each serves to indicate the diversity of concepts accruing to the phrase "collective bargaining." In an attempt to gain a more general definition of the phrase, Dunlop and Healy apply it to all discussions between representatives of unions and management.²⁶ However, it is desirable for purposes of this paper to focus on the general process of creating an agreement rather than the process of administering an agreement on a day-to-day basis. Specifically, it is the process of arriving at wage agreements with which the paper is concerned.

The process of wage determination, whether by bilateral or unilateral means, has been the subject of a great deal of theoretical and empirical enquiry. Competent analysis cannot disregard the results of such work, particularly when, as Belcher states, the task of wage theory is to specify the factors that determine compensation, the manner in which they do so, and the relative and absolute importance of each.²⁷ Consequently, the writings emanating

²⁵Neil W. Chamberlain, Collective Bargaining (New York: McGraw-Hill Book Co., 1951), pp. 121-39.

²⁶Dunlop and Healy, Collective Bargaining, p. 69.

²⁷David W. Belcher, Wage and Salary Administration

from these studies form the roots upon which this study draws life.

It is the intent of the following review to cut across this vast wealth of theoretical knowledge in such a way that the basic principles of the major schools of thought emerge in a logical and consistent order. Implications of these theories with respect to the collective bargaining process are highlighted wherever possible, in keeping with the main theme of collective wage determination.

Theory of Wage Determination

According to Belcher the just-price theory, one that was widely accepted in the Middle Ages, explained the wages of the few free artisans and craftsmen in the labour force at that time in terms of a pre-established status distribution. Although it was primarily an economic theory, with the just wage being one that assured the continued availability of the services of independent craftsmen, it is interesting to note some sociological implications of the theory because of its emphasis on equity and tying wages to status. Such thought is likely the parent of the modern craft demand for a "fair day's work."²⁸

The physiocratic school (circa 1750), led by

(2nd ed.; Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1962), p. 29.

²⁸Ibid., pp. 30-31.

Francois Quesnay, asserted that the landless labourer was naturally placed in such an unfavorable position with the employer that his wages would never rise above the level of bare subsistence.²⁹ This philosophy set the trend for the classical wage theorists, led by such notables as Adam Smith, David Ricardo, and John Stuart Mill, all of whom disarranged the hopes of labour ever reaching a higher than subsistence level of existence.

Adam Smith's labour theory of value concluded that the full value of any commodity is the amount of labour it will buy. However, Smith did conceive of the possibility of wage differentials based upon such factors as hardship and difficulty of learning the job, thereby providing a theory of wage structure as well as the demand side of a theory of wage levels.

With respect to organized labour, Smith felt that workmen were always at a disadvantage and, due to lack of economic endurance, would resort to aggressive and violent strategies which would inevitably lead to their downfall. This forecast of the likely success of the labour movement was an economic one with no attention given to the possible desires of the workers for enhanced social or political status.³⁰

²⁹Charles W. Brennan, Wage Administration (Revised ed.; Homewood, Ill.: Richard D. Irwin, Inc., 1963), p. 15.

³⁰A condensation of arguments advanced by Adam Smith's Wealth of Nations (Modern Library; New York: Random House, 1937).

David Ricardo also felt that little could be done to improve the lot of the wage earner because an increase in wages would only lead to an increase in the number of workers beyond the means of subsistence. In essence, Ricardo's subsistence theory, often called the "iron law of wages," indicated that, in the long run, wages tend to equal the cost of reproducing labour--the subsistence of labour.³¹

John Stuart Mill and Ricardo advanced the wages-fund theory. This theory postulated the availability of a fixed fund made up of the resources accumulated by entrepreneurs from previous years and allocated by them to buy labour. It was out of this fund that wages were paid. If the number of workers increased, the average wage would decline and if the number were smaller, the average wage would be higher. Similarly, if one group of workers improved its wages, it could only be at the expense of the other workers for whom there would be less left in the wages fund.³² The wages-fund theory, like those before it, implied that little could be done for the workers by either public or private action.

Marx substantially accepted these early theories. His explanation of the wage-setting process included the idea that the entrepreneur collects the value created by

³¹The subsistence theory is summarized by Belcher in Wage and Salary Administration, pp. 31-32.

³²Jules Backman, Wage Determination: An Analysis of Wage Criteria (Princeton, N.J.: D. Van Nostrand Co. Inc., 1959), p. 12.

labour but pays labour only at the cost of subsistence. The difference, surplus value, goes to rent, interest, and profit. Since he felt that all value was created by labour, the existence of surplus meant the exploitation of labour. Land and capital, as well as labour, produce value. Hence, his basic assumptions were incorrect.³³

The economic aspects of the preceding theories have subsequently been largely discarded. The sociological explanations and political implications, however, are still pertinent, as advanced by many of the modern behavioral and institutional theorists.

Another, more modern school of thought, the marginal productivity school, provides an economic model, the application of which forms the base of much contention. Marginal productivity theory emphasizes the relationship between wages and the volume and value of goods or services workers produce. The underlying principle is profit maximization. As stated by Peterson:

With respect to labor's share or value, the theory holds that wages tend to be fixed at the point that represents the employer's estimate of the contribution of the last unit of labor employed, which becomes the marginal unit. The number of units of labour which he will employ will be determined by what he must pay for the marginal unit of labour in comparison to the marginal units of land (rent) and capital (interest), and by what he thinks his own marginal risks should yield in the way of profits.³⁴

³³ Summarized by Belcher, Wage and Salary Administration, p. 32.

³⁴ Florence Peterson, Survey of Labor Economics, (Revised ed.; New York: Harper & Brother, 1951), p. 239.

Controversy runs rampant over the merits of this theory. It appears basically, that the theory is a good long run predictor under conditions of effective competition. However, some economists want to include more realism in the assumptions underlying the theory in an attempt to improve its explanatory value.³⁵ The inclusion of realism is done at a cost, in that, although it suits specific conditions better, universality of application is lost.

Under conditions of oligopoly or monopoly even the staunchest advocates of marginalism realize its shortcomings.³⁶ According to Higgins, in a competitive market the equation of marginal revenue product and marginal cost (profit maximization) is a necessity for survival.³⁷ Not so under monopoly or oligopoly. Hence, additional factors must be included in the order of psychological and behavioral determinants of decision-making.

A modification of the marginal theory is the bargaining theory of wages under which the level of wages

³⁵Examples of such writings are: R. A. Lester "Shortcomings of Marginal Analysis for Wage-Employment Problems," American Economic Review, XVI (March, 1946), 63-82, and R. L. Hall and C. J. Hitch, "Price Theory and Business Behavior," Oxford Economic Papers, II (May, 1939), 12-45.

³⁶Fritz Machlup, "Theories of the Firm: Marginal, Behavioral, Managerial," American Economic Review, LVII, No. 1 (March, 1967), 1-33.

³⁷Benjamin Higgins in A. G. Papandreou, "Some Basic Problems in the Theory of the Firm," A Survey of Contemporary Economics, ed. by B. F. Haley (Homewood, Ill.: Richard D. Irwin Inc., 1952), p. 207.

is determined by collective bargaining. The theory is based upon the premise that there is not any single wage rate for a particular type of work. There is instead a range of possible wages encompassed within the parameters of marginal theory. If the union is relatively strong, wages will tend to be near the upper level of the range. If management has greater strength, the level of wages will be lower.³⁸ In the short run there appears to be some substance to this approach to wage theory.³⁹

Behavioral science theories have subsequently emerged in an attempt to improve the explanatory value of traditional economic theory and enhance its predictive quality under noncompetitive conditions. The range of indeterminacy existing in bargaining theory emphasizes that factors other than economic are operating.

Behavioral theories focus on the inclusion of more realistic factors in the decision-making process, both by

³⁸Although writers as early as Adam Smith have made reference to collective bargaining in the labour market, the earliest impetus toward serious consideration of the process as a factor in wage determination was given by Sidney and Beatrice Webb of England and John Bates Clark of the United States, according to Chester A. Morgan, Labor Economics (Homewood, Ill.: The Dorsey Press, Inc., 1952), p. 71. Later contributors to the theory include A. C. Pigou, The Economics of Welfare (2nd ed.; London: MacMillan & Co., Ltd., 1924); John T. Dunlop, Wage Determination Under Trade Unions (New York: Augustus M. Kelley, Inc., 1950); and Allan M. Cartter, Theory of Wages and Employment (Homewood, Ill.: Richard D. Irwin, Inc., 1959).

³⁹An opinion expressed by Backman in Wage Determination, pp. 12-13.

management and organized or unorganized employees. Profit maximization is not always the goal of the entrepreneur.

In fact, he may only attempt to satisfy rather than maximize,⁴⁰ assume goals other than profits, such as leisure time,⁴¹ or may assume multiple goals.⁴²

Assumptions regarding the rationality of the employee with respect to economic motives are similarly given less emphasis by the behavioral approach. For example, employees are often attracted to jobs for other than economic reasons and workers are not as mobile as suggested by traditional theory.⁴³

According to Papandreou, the effect of the organization on the efficiency with which decisions are reached and the inclusion of external influences on these decisions must also be considered.⁴⁴ The resistance of the techno-structure toward outside interference is another

⁴⁰A theory expressed by Herbert Simon in "A Behavioral Model of Rational Choice," Quarterly Journal of Economics, LXIX (Feb., 1955), 99-118.

⁴¹A theory outlined by T. Scitovsky, "A Note on Profit Maximization and its Implications," Rev. Econ. Stud. XI (Winter, 1943), 57-60. Reprinted in AEA, Readings in Price Theory (Homewood, Ill.: 1952), pp. 352-58.

⁴²The reader is directed to R. M. Cyert and J. G. March, Behavioral Theory of the Firm (Englewood Cliffs, N.J.: 1963) for an explanation of the multiple goals theory.

⁴³A more inclusive list of factors influencing employees is found in Belcher, Wage and Salary Administration, pp. 50-51.

⁴⁴This theory is advanced by Papandreou in "Some Basic Problems," pp. 193-219.

type of influence which Galbraith feels has a bearing on decisions made by organizations.⁴⁵

These are but a small sample of behavioral developments. They are not intended to describe the breadth of theoretical development but only to give examples of the kinds of factors which are not embodied by traditional economic theory.

Institutional wage theory drew breath from the attempts of labour economists to merge the psychological and sociological concepts of the behavioral theories with traditional economic theory. These economists desire realism, allowing parallels to be drawn between theory and empirical observation, under a variety of conditions.

Institutionalists favour dynamic rather than the static analysis of traditional economic theory. The effects of institutions and of leadership within these institutions is important. For example, unions are recognized to have a wage philosophy with strong ethical overtones which insist on certain standards of health, safety, and decency, and improvements in those standards regardless of cost. The employee may also be motivated by factors other than wages such as status.

Institutional analysis is concerned with the relative weight of economic and noneconomic considerations in wage

⁴⁵John Kenneth Galbraith in The New Industrial State (Toronto: The New American Library of Canada Limited, 1967), p. 88.

determination in general and in each type of wage relationship. There is general agreement that economic forces determine the level of wages somewhat loosely, depending on the market, leaving a range of discretion. It is within this range of discretion that the behavioral factors operate.⁴⁶ This is the school of thought from which the present study emerged.

Most economists agree that noneconomic influences are relevant in the short run. Pure competition is not often found and even under effective competition variances from economic incentives do have leeway to operate in the short run. These foundations set the stage for an examination of the influence of economic and noneconomic factors on wage determination.

Figure 1 below relates the economic and noneconomic factors, described fully in Chapter Two, to the preceding broad categories of wage theory.

⁴⁶The summary of Institutional Theory is based on Belcher's Wage and Salary Administration, pp. 68-74.

CHAPTER II

FACTORS INFLUENCING WAGE DECISIONS

As mentioned earlier, it is the task of wage theory to specify the factors that determine compensation, the manner in which they do so, and the relative and absolute importance of each.¹ Accordingly, many of the factors emerge directly from existing wage theories. An examination of relevant empirical studies similarly revealed an array of influences on wage decisions. This merger of theoretical and empirical information is consistent with current theoretical developments, bearing in mind that the philosophy of the institutional theorist embodies a desire for the realism of linking theory with empirical observation.² It is from a review of such literature that the factors influencing wage decisions were derived.

From a veritable myriad of factors a manageable number of twenty-two were composited and deemed to approximate the totality of influences on wage decisions. The isolation of such factors relied heavily on the work of several labour economists and, on a pragmatic basis, the impressions of the parties to the collective bargaining

¹Belcher, Wage and Salary Administration, p. 29.

²Ibid., pp. 68-74.

process. With reference to the latter reliance, the emphasis is on applicability. As Bernstein cogently stated, any taxonomical system is inherently arbitrary--the approach is to develop a workable system.³ In view of the vast array of influences, it was impossible not to be somewhat arbitrary in developing composite factors. However, since the factors were to be applied in the field, the goal of developing a workable system tended to supercede problems of arbitrariness. Consequently, it was inevitable that many of the factors interrelate and exert causal forces, one upon the other. Nevertheless, each factor contains the degree of uniqueness necessary to justify its isolation.

In addition to the necessity of developing a workable list of factors influencing wage decisions, broad classifications are required within which the factors can be categorized. Such a taxonomical system is necessary in accordance with the precepts of the second and third hypotheses which make reference to factors classified as economic in nature.⁴

The review of wage theory presented earlier has given the reader some appreciation of the various broad categorizations of factors developed by economists.⁵ For

³Irving Bernstein, Arbitration of Wages (Berkeley and Los Angeles: University of California Press, 1954), p. 56.

⁴See Chapter I, p. 7.

⁵See Chapter I, pp. 17-25.

example, the historical theories focused primarily on economic influences but did espouse the ethical just wage. The marginal productivity theorists centered on economic factors alone, while the behavioral and institutional theorists included reference to a great many noneconomic factors. From such loose categorizations further criteria permitting the classification of all economic factors was required.

Different authors have categorized influences on wage decisions in various manners. For example, Reynolds refers to "economic" or "competitive" forces as opposed to others which he designates as "institutional" pressures.⁶ Perlman dichotomizes them into "market" and "power" forces, with "market" comprising the laws of supply and demand in accordance with the marginal productivity theory and "power" representing bargaining strength.⁷ In a like vein, Machlup refers to economics in a narrow sense as being confined to such aspects of conduct as can be explained with references to the principles of maximizing satisfaction, income, or profit. Under such a definition any deviation from the marginal principle would be extra-economic.⁸ In

⁶Lloyd G. Reynolds, "The State of Wage Theory," Industrial Relations Research Association. Proceedings of Sixth Annual Meeting (Washington, D.C., 1953), p. 240.

⁷Richard Perlman, "Introduction," Wage Determination: Market or Power Forces? ed. by Richard Perlman (Boston: D. C. Heath and Company, 1964), p. v.

⁸Fritz Machlup, "Marginal Analysis and Empirical Research," Wage Determination: Market or Power, ed. by

essence the preceding writers term economic, competitive, or market concepts as representative of the factors embodied by the marginal principles, while the remainder of factors fall under the power, institutional, or extra-economic concepts, respectively.

According to Kerr such a dichotomy lacks full precision, because "power" forces often work through the market as well as on price directly. In addition "market" forces themselves contain elements of power to the extent that persons or groups can and do directly influence the demand or supply side of the market. In consequence, he offers a further breakdown: "Individual Responses"/"Institutional Behavior."⁹ Likewise other authors offer different categorizations of influences, particularly on the extra-economic side, where reference is made to social, political, psychological and sociological classifications.¹⁰

Obviously, categorizing the factors into mutually exclusive and meaningful classifications is no easy task. The economic, market, or competitive concepts relevant to marginal principles only do not lend themselves to direct

Perlman, p. 31.

⁹Clark Kerr, "Wage Relationships--The Comparative Impact of Market and Power Forces," Wage Determination: Market or Power, ed. by Perlman, p. 81.

¹⁰See, for example, Ross, Trade Union Wage Policy, p. 7, where reference is made to political, psychological and sociological influences. Similarly, Peitchinis, The Economics of Labour, p. 290, makes reference to short run influences in terms of social and political concepts.

empirical use,¹¹ although Machlup does present some convincing arguments showing that such principles are empirically verifiable on an indirect basis.¹² Similarly, the extra-economic concepts referred to earlier lack the precision necessary for an analytical framework.

The method of categorization adopted for this paper is based on Chamberlain's "factual approach to collective bargaining." This is a pragmatic system which allows both sides to estimate the economic effects of the positions they take in terms of quantifiable economic data.¹³ In this approach, the term economic refers to more than simply the precepts of marginal theory, although many of the factors are linked directly to marginal principles. In essence a factor influencing wage decisions is designated as economic if it can be evaluated by reference to quantifiable, ascertainable fact relevant to the economic system. Although this concept of economic is broader than that posed by the marginal productivity theory,

¹¹Both Lester in "Shortcomings of Marginal Analysis," pp. 63-82, and Hall and Hitch in "Price Theory and Business Behavior," pp. 12-45, relate that the concepts emanating from the marginal productivity theory are not applied by the businessman in the real world.

¹²Machlup in "Marginal Analysis and Empirical Research," pp. 34-35, indicates that although the academic concepts emerging from the marginal productivity theory are not found to be used in the market, the underlying bases of business decisions are still related to marginalist principles whether applied in an objective or subjective manner.

¹³Neil W. Chamberlain, Collective Bargaining Procedures, American Council on Public Affairs (Washington, D.C., 1944), Chapter 6.

Machlup's arguments are not disregarded in that marginal principles are related wherever possible to working definitions. All data not verifiable by quantifiable, ascertainable fact are termed noneconomic by Chamberlain.¹⁴ It is these terms--economic and noneconomic--which have been adopted to categorize the factors influencing wage decisions.

The use of the word economic in terms of the ability to develop quantifiable facts is consistent with Dale's philosophy that such facts are invaluable in ascertaining the consequences or tendencies of wage decisions and the effect of such decisions on the public. Therefore, they provide relevant economic logic for the wage decision-making process.¹⁵ As Henig points out, economists seldom indicate an explicit principle upon which to appraise rates as proper, excessive, or insufficient.¹⁶ However, Clark takes us part way toward such a gauge by indicating that an economically sound wage is one which is noninflationary and consistent with the principle of full employment.¹⁷ It is against such standards that both sides

¹⁴Ibid.

¹⁵Ernest Dale, Sources of Economic Information for Collective Bargaining, Research Report Number 17, American Management Association (New York: American Management Association, 1950), p. 6.

¹⁶H. Henig, "A Functional Criteria for Wage Appraisal," Journal of Political Economy, LX (1952), 44-59.

¹⁷John Maurice Clark, "Criteria of Sound Wage Adjustment, with Emphasis on the Question of Inflationary

can estimate the economic effects of the positions they take in terms of quantifiable economic data.

The economic factors are further divided into two groups. The first group encompasses those upon which decisions are made on purely economic terms and includes ability to pay, productivity changes, labour market conditions, and wage guidelines. The use of these factors, which stem from the marginal productivity theory, as sources for wage decision-making is held to be in the best interest of the economy. They largely reflect those changes in the organization and the economy upon which decisions congruent with the state of the economy can be made. The remaining economic factors, including cost of living changes, minimum wage legislation, other benefits gained at the expense of wages, living wage, and the ability to strike or lockout or to resist a strike or lockout, contain ethical undertones or subjective values and do not reflect changes upon which decisions congruent with the state of the economy can be made. However they still provide useful economic logic for the wage decision-making process.

The noneconomic influences do not lend themselves to quantification and, hence, do not relate to the impact on the economy in measurable terms. Nor can they be used as guideposts upon which responsible wage decisions can be based. Kerr's comments with respect to the interrelation-

ship between economic and noneconomic factors¹⁸ must be kept in mind but at this stage in theoretical development such a breakdown is most useful for analytical purposes. The difficulty in developing further breakdowns on the noneconomic side is overwhelming and, in any event, is not necessary in order to fulfill the objectives of this paper.

Although the factors were identified primarily in relation to collective wage determination processes, the majority of them are also applicable to unilateral wage decisions. For example, some form of employee representation may exist on an informal basis in a non-unionized firm. This provision is in keeping with the second hypothesis which states, in part, that those factors of an economic nature especially those devoid of ethical undertones will tend to be more important in the unilateral decision than they will in bilateral circumstances. Because the factors are to be applied in unilateral conditions, care has been taken to use terminology applicable to both unilateral and bilateral decision-making (for example, employee representative is used instead of union to represent employee organization).

Similarly, although the factors are designed to measure influences on wage level changes, wage level and wage structure are so tightly interwoven that both are included. For example, a change in internal wage structure

¹⁸See p. 30 of this chapter.

usually influences the overall level of wages. Furthermore, it is through such internal relationships, as manifested in the wage structure, that the impact of external forces are often focused.¹⁹

The following presentation of the factors used in this study includes the source(s) from whence the factor was developed, its practical significance in terms of past and present negotiations, advantages and disadvantages accruing to its use, and concludes with a working definition. The working definitions operationalize the measuring device with which the data were collected for hypothesis testing and, consequently, are designed as modes of communication rather than illustrations of academic expertise. (See Appendix A for the application of the working definitions to the measuring device.)

In accordance with the requirement of applicability the working definitions were pretested in the field prior to the conduct of the study for inclusiveness, overlap, misleading or ambiguous terminology, appropriate composition, clearness, and workability on a practical basis. Although the review of literature tended to reveal an inclusive list of factors, regroupings, changes, and modifications were

¹⁹Dunlop's job cluster theory emphasizes the interrelationship between internal and external structures. John T. Dunlop, "The Task of Contemporary Wage Theory," New Concepts in Wage Determination, ed. by George W. Taylor and Frank C. Pierson (New York: McGraw-Hill Book Company, Inc., 1957), pp. 117-39. This theory is explained in more detail below. See pp. 50-51 of this chapter.

required as a result of the pretest. The intent was to merge theoretical with empirical information in an attempt to provide a justifiable and workable list of factors which were consistent with the basic precepts of wage theory.

The following is a complete list of the factors presented according to their classification in the economic or noneconomic categories.

Economic Factors

Ability to pay

According to the marginal productivity theory, in a perfectly competitive product market the only method of survival for a firm is the maximization of profits through the equation of marginal revenue with marginal costs.²⁰ Such an equation includes balancing the marginal revenue product of labour with its marginal cost--the latter representing the link between the theory and the decision-making process related to wage determination. Under perfectly competitive market conditions the marginal productivity theory is not a wage theory at the level of the firm. Rather it is a theory of employment at that level with wages determined by the supply and demand conditions of the labour market. However, the theory does relate to the wage level in the sense that the marginal

²⁰Higgins in Papandreou, "Some Basic Problems in the Theory of the Firm," p. 207.

revenue product for labour becomes the demand curve for labour.²¹ As Cartter puts it:

The marginal product of a given quantity of available labour determines its wage level when we consider the market as a whole; in the disaggregated picture, however, where a single employer finds the wage level determined by forces beyond his control, the marginal product of labour determines the level of employment.²²

Since most product markets are less than perfectly competitive and often approach oligopolistic or monopolistic tendencies,²³ the firm is not inexorably tied to the goal of profit maximization and no longer is it simply a pawn of the ominous workings of the market. An employer may still attempt to maximize profits but survival is no longer dependent upon such a motive.²⁴ In an imperfect market the employer is able to adjust both the level of employment and the wage level. To quote Peitchinis:

His decision to hire, and the number he will hire, relative to the quantity of labour available, will influence the wage schedule. Similarly, his decision to sell or not to sell, and the quantity he decides to sell at various prices, relative to quantities demanded, will influence the price schedule. Even though the wage will be determined by the employer's

²¹Peitchinis, The Economics of Labour, pp. 275-76.

²²Cartter, Theory of Wages and Employment, p. 19.

²³Galbraith in The New Industrial State, pp. 13-22.

²⁴There is room for other motivational forces. Such forces are the bases of several theories. For example, T. Scitovsky in "A Note on Profit Maximisation and its Implications," pp. 57-60, postulates a theory which includes a motivating force in the form of leisure or business inactivity. While Melvin W. Reder in "A Reconsideration of the Marginal Productivity Theory," Journal of Political Economics, LV (October, 1947), 450-58 hypothesizes that profits will be sacrificed for control.

demand for labour (reflected in his marginal revenue product), and the supply of labour (reflected in his marginal labour costs), he has the power to influence both.²⁵

Likewise, from labour's side, the labour market does not always act with the precision implied by the marginal productivity theory. For example, factors other than wages influence workers' decisions related to employment.²⁶

In the long run the theory, even under less than perfectly competitive conditions, tends to be predictive of wage and employment movements but in the short run, without the forces of the market dictating all terms, there is room for other factors to become operative and influence wage decisions.²⁷ However, whether or not the precepts of the theory are directly applicable they still tend to serve as criteria for many of the economic decisions related to wages.

In consequence, the economic factor ability to pay has as its roots the principles of marginal productivity even though it is designed primarily for short run, pragmatic decision-making. The more highly competitive the market, the more critical will be the principles of marginal

²⁵Peitchinis, The Economics of Labour, p. 277.

²⁶Examples of writings supporting this statement include: Lloyd G. Reynolds and Joseph Shister, Job Horizons, A Study of Job Satisfaction and Labour Mobility (New York: Harper Brothers, 1966); and A. Zaleznik, C. R. Christensen, and F. J. Roethlisberger, The Motivation, Productivity and Satisfaction of Workers (Norwood, Man.: The Plimpton Press, 1965).

²⁷Examples of such factors are encompassed by those to be discussed under the economic and noneconomic classifications in the following pages of this chapter.

productivity, largely reflected in the ability to pay factor. In the case of less competitive conditions, such principles tend only to set the broad or narrow limits within which other factors tend to become operative. Nevertheless, the ability to pay factor is central to the economic viability of the firm.

That marginalist concepts are inapplicable to the analysis of decisions made by real entrepreneurs has been advanced on several occasions, notably by Lester and Hall and Hitch. They have attempted to indicate that decisions are often made in terms inconsistent with the marginalist principles.²⁸ Not so counters Machlup. He feels that although businessmen may not be aware of the economic terminology surrounding the marginal theory they do, in fact, make decisions in a manner that is largely consistent with marginalist principles, albeit in a subjective manner. As Machlup states, "Marginal analysis of the firm should not be understood to imply anything but subjective estimates, guesses and hunches."²⁹

The preceding paragraphs have set the theoretical base for the following explicit ability to pay considerations. Other economic factors are similarly related to the precepts of the marginal productivity theory but none

²⁸Lester, "Shortcomings of Marginal Analysis," pp. 63-82 and Hall and Hitch, "Price Theory and Business Behavior," pp. 12-45.

²⁹Machlup, "Marginal Analysis and Empirical Research," p. 35.

so closely as ability to pay. Hopefully the ensuing paragraphs will portray the flavour of the manner in which wage decisions are influenced by this factor and the degree to which it tends to have a bearing on such decisions.

Competition in the product market is a highly important consideration under ability to pay in all but the case of the monopolistic seller, hence an examination of demand and supply conditions is a necessary prerequisite in terms of adjusting wage levels.³⁰ For example, the greater the elasticity of demand for the product the more difficult will it be to pass cost increases on as increased prices. In the case of the oligopolistic seller, the ability to reflect increased costs in terms of pricing will depend upon whether such a seller perceives himself to be a leader or a follower in price setting. A follower will be extremely reluctant to raise his prices.

If a firm is operating in less than perfectly competitive conditions there is usually some opportunity to pass on at least a portion of the increased costs to the consumer. However, the more effective the competition the less such an opportunity exists and increases in

³⁰ Empirical studies such as George P. Schultz, Pressures on Wage Decisions (The Technology Press of the Massachusetts Institute of Technology and John Wiley and Sons, Inc., New York, 1951); and George Seltzer, "Pattern Bargaining and the United Steel Workers," Journal of Political Economy, LIX, No. 4 (August, 1951), pp. 319-31 support the influence of the product market upon wage decisions.

wages³¹ must then be granted in relation to increased productivity or an increase in labour's share of profits. Under such effective competition, an increase in the share of profits going to labour may result in sub-normal profits accruing to the firm and may well foster its discontinuance in the product market. Although workers could increase real income by receiving a larger share of higher than normal profits, economists argue that such profits will be absorbed by the entry of more firms into the product market in accordance with the marginal productivity theory, thereby increasing the supply of the product and reducing prices and profits.³²

Under highly competitive conditions, if wages were forced up, a decrease in employment would be inevitable without some corresponding increase in the efficiency of the economic system. In fact the substitution of other factors of production (e.g., machines) would become an enticing alternative. Hence, it is only through an increase in productivity that the employee can hope to gain a real wage increase under such conditions.³³

Since less than competitive conditions tend to predominate, the laws of supply and demand tend to set

³¹Money or real wages.

³²Dale, Sources of Economic Information for Collective Bargaining, p. 120.

³³Many economists argue that this is the only way that real income can be increased irrespective of market conditions. See footnote 40 for references.

broader limits within which other forces are operative in the wage decision-making process. For example, there may be room for labour to increase its share of profit at the expense of the firm or shareholder. Similarly, there may be an opportunity to pass costs on to the consumer. In such cases the per cent of labour costs in terms of total cost becomes an important consideration--the greater this percentage the greater the pressure on management to keep wage costs down.³⁴ Another consideration centers on the implication that wage increases granted to particular groups (e.g., unionized bargaining unit) will have consequences in terms of increased wages, and, therefore, costs, accruing to other groups, including supervisors.

More than simply a static evaluation of market conditions is required. An evaluation of general economic conditions, present and future, is necessary in order to assess the future implications of present and past wage increases. Such analysis adds grist to the wage decision-making process.

Analysis conducted within the economic standards set by the principles of marginal productivity establishes the guidelines within which the firm must make its decisions.

³⁴Melvin W. Reder in "The Theory of Union Wage Policy," Industrial Relations Research Association. Proceedings of Fifth Annual Meeting (Chicago, Ill., 1952), p. 45 states that the range within which noneconomic factors can affect the long run equilibrium value of the wage rate (for a given firm) will vary, in part, inversely with the ratio of wage cost to total cost for that firm.

As such the importance of the factor cannot be underestimated. However, its importance as a factor in collective bargaining may not merit the same degree of significance. The union is usually less than enamoured with arguments relating to ability to pay, particularly because of the fact that management cannot or will not provide all of the data necessary to support such arguments.³⁵ Certainly the factor tends to exert a far greater influence on management than it does on the union.³⁶ Likewise, the degree to which the union considers the ramifications of wage changes on the employment level of the firm is a moot point.³⁷

Bernstein has found, in his analysis of arbitration cases, that the ability to pay argument is usually forwarded by the employer only and, consequently, tends to be presented from a negative point of view. In view of the lack of data supplied by the employer in defense of this argument, arbitrators have tended to give it only little weight. It would appear that only in the case of

³⁵Bernstein, Arbitration of Wages, pp. 77-90.

³⁶Leland Hazard, "Wage Theory: A Management View," New Concepts in Wage Determination, pp. 32-50.

³⁷For example, Shultz in Pressures on Wage Decisions cites the unemployment pressure on unions as a factor to be reckoned with. Conversely, Lloyd G. Reynolds in Labor Economics and Labor Relations (New York: Prentice-Hall, 1949), p. 382 states that "There is little evidence that union leaders think in terms of a demand curve for labor, or that they try to estimate the effect of different wage levels in the volume of employment in the industry."

bankruptcy or near bankruptcy does it become an important factor.³⁸

Although the factor tends to be used primarily in terms of setting an upper limit on the wage bargain, Reynolds states that it probably receives its greatest weight in the "key bargain," where few other criteria exist upon which to base decisions.³⁹

Even if acceptance of this criterion as a factor in effecting wage decisions could be attained, a whole host of problems surround its application. For example, what standards are to be used in determining the employer's financial situation and how are they to be translated into a detailed wage decision? Finally there is the problem of the chaotic wage pattern that would exist if ability to pay was the only factor influencing the wage decision. Similar or identical occupations could be paid entirely different wages within the same industry or between different industries.

Regardless of problems associated with its acceptance, measurement, and general use, there is no doubt that ability to pay is a fundamental determinant of wage decision-making and as such merits close consideration.

Working definition

This factor is central to the economic viability of

³⁸Bernstein, Arbitration of Wages, pp. 77-90.

³⁹Reynolds, Labor Economics and Labor Relations, p. 382.

the firm. It consists essentially of the consideration of overall costs, including present and projected costs of labour, in relation to current profit levels and anticipated revenues. Analysis of the factor is often performed in terms of relating marginal costs to marginal revenues or average costs to average revenues. Such analysis includes a review of the ability to pass costs on, generally in the form of higher prices, in addition to the capability of absorbing them. Also requiring continuing analysis is the degree to which labour should share in income in relation to contribution. The term encompasses the examination of the percentage of labour to total cost, the ability to substitute other factors of production, the effect pay rate increases could have on the pay rates assigned to other groups of employees in terms of costs, and an evaluation of present and future economic conditions in general. Implicit is the effect changes in cost may have on the employment level of the firm; for example, extensive lay-offs may be necessary in the event that a firm cannot cope with increased labour costs.

Productivity changes

The importance of this factor as a source from which real wage increases can be granted has already been referred to under ability to pay. In fact many economists feel that it is the determinant of how much wages will increase in the long run, in accordance with the principles of marginal productivity.⁴⁰ Although consideration of productivity is basic to an analysis of ability to pay, the factor does stand out in its own right, particularly in view of the availability of industry and national productivity statistics.

⁴⁰Peitchinis, The Economics of Labour, p. 290. Clark Kerr in "The Short-Run Behavior of Physical Productivity and Average Hourly Earnings," The Review of Economics and Statistics (November, 1949), pp. 299-309 found that a long-run relationship did exist between productivity and earnings.

Productivity is defined as (1) an increase of output per unit of input, or (2) when the same output is produced with a smaller input.⁴¹ It is this factor, and this factor alone, assuming relative income shares to be equitably distributed amongst factors, which serves as the source from which real incomes can be increased. The adoption of this factor as a criterion for the collective negotiation of wages is consistent with Dale's philosophy that economic facts are invaluable in ascertaining the consequences or tendencies of wage decisions and the effect of such decisions on the public.⁴² According to Peitchinis, ". . . the most certain way to prevent wage-cost inflation would be for each firm to adjust its wage rates in exact proportion to the change in its productivity."⁴³ This statement implies wages decreases with decreases in productivity.

Since relative income shares are rarely equitably distributed amongst factors and, in any event, the determination of equity is extremely difficult, particularly in a less than competitive market, it is impossible to rely on this factor alone. Other problems negating the use of productivity as a standard are the problem of wage inequities occurring in relation to skills, the question

⁴¹Dale, Sources of Economic Information for Collective Bargaining, p. 31.

⁴²Ibid., p. 6.

⁴³Peitchinis, The Economics of Labour, p. 355.

of measurement, the resistance of the union in accepting wage decreases corresponding to productivity decreases, and the difficulty of determining how increases in productivity should be shared--a wage increase or a price decrease.

Arbitrators tend to find productivity to be a valid justification for higher wages but statistics vary with respect to the popularity of the factor as a wage criterion. For example, Bambrick and Blum found 24 per cent of U.S. employers and 80 per cent of unions used productivity data in negotiations.⁴⁴ However, Bernstein found productivity cited by only 4.3 per cent of unions, 1.4 per cent of employers but not by a single arbitrator in his analysis of arbitration cases.⁴⁵ It is for the reasons cited in the preceding paragraph that the parties to collective bargaining have been reticent in accepting the factor as a wage decision-making standard.

Productivity data is directly applicable only if it emanates from the firm with which collective negotiations are concerned. Although industry and national productivity figures can serve as general background information for average wage increases, the direct application of such data is not economically sound. For example, if a firm is unable

⁴⁴James J. Bambrick and Albert M. Blum, "Productivity and Wage Negotiation," Management Record (October, 1957), p. 353.

⁴⁵Bernstein, Arbitration of Wages, pp. 28-29.

to attract the quantity and quality of labour required and could only raise wages in proportion to industry productivity statistics, an approach adopted by all firms in the industry, it would be placed in an extremely difficult operating position in that it would have difficulty in gaining ground with respect to its recruitment problems.

However, the importance of this factor as a sound economic guide for wage decision-making should be stressed, for it is only through the application of such data that wage decisions can be effected in accordance with the health of the economy.

Working definition

A part of cost analysis related to ability to pay but with broader application. It includes not only the internal influence of changes in production but also embodies the influence of national productivity information. Changes in productivity may result from a number of elements, including technological advances, more skillful management, or increases in worker efficiency.

Labour market conditions

Under perfect competition it is the demand (reflected in the marginal revenue product of labour) and supply conditions that determine wages. Although these principles are not directly applicable under less perfect conditions, they still represent strong forces with which the parties to wage decision-making must be concerned. Consequently, this factor also has marginalist principles

at its source.

Labour market conditions, commonly referred to as comparable wage rates, is the factor through which demand and supply of labour are manifested. Certainly if a firm is having trouble in recruiting and retaining a suitable labour supply it must become cognizant of those rates being paid similar occupations throughout the labour market.⁴⁶ To a large degree those occupations to which relatively large wage rates accrue are those for which demand is high and supply is short.

Aside from the economic necessity of analyzing wage rates which reflect demand and supply in the labour market, the criterion tends to be highly acceptable to all concerned as an ethical base for wage changes. Bernstein found that the worker likes comparable rates because he feels no discrimination if he stays abreast of the community. The employer likes them because competitors will not gain a wage-cost advantage and he will be able to recruit in the applicable labour market. The arbitrator favours them in view of his commitment to precedent.⁴⁷ In addition, the factor is easily quantified and understood by everyone. Because of this high regard for the applicability of the factor, there are considerable employee

⁴⁶ A labour market is defined by Peitchinis in The Economics of Labour, p. 36 as any geographic area within which labour mobility is adequately fluid to make the labour force responsive to changes in wages and working conditions.

⁴⁷ Bernstein, Arbitration of Wages, p. 54.

and management pressures⁴⁸ tending to reinforce its use.

The typical method of measuring comparable wage rates is with the wage survey and it is at this point that many of the problems associated with the factor emanate. Questions arising include: How is the wage to be defined? Should it include over-time pay in addition to straight time pay or should it measure the range instead of the actual rate? How precisely can the job be defined? Where should comparisons be made, that is, on an industrial or geographical basis? The difficulty in comparing the quality of workers in relation to the wage rates they are receiving for apparently similar jobs is another shortcoming in the application of this factor.

In view of the problems associated with collecting information on jobs that cannot be defined with precision, many firms make such comparisons with key jobs only. Dunlop has developed a theory with respect to this method, integrating labour market conditions with job evaluation.⁴⁹ This system is based on the job cluster which is a stable unit of job classifications, or work assignments, in a firm which are so linked together by technology, administrative organization, and social customs. Each cluster has one or more key jobs which are readily comparable to those of other

⁴⁸Such pressures are discussed below. See pp. 66-69.

⁴⁹The influence of job evaluation is discussed in terms of the factor intrinsic job worth. See pp. 81-84.

firms and, consequently, constitute the linkage between exterior developments and the interior rate structure of the firm.⁵⁰

The factor is highly acceptable to the wage decision-makers and tends to bear the greatest weight in the determination of wage changes, especially when conciliation officers and boards are called upon to resolve labour-management wage disputes.⁵¹ However, it has limitations aside from those associated with the practical application of the factor. For example, Bronfenbrenner and Holzman state that the use of comparable wage rates can result in wage increases which must be passed on--an inflationary tendency.⁵² Furthermore, the use of comparable wage rates is inapplicable in the case of the key bargain, where new ground must be turned. Nevertheless, in view of its ethical undertones and ease of application, the factor bears considerable weight in the analysis of factors influencing wage decisions.

Working definition

The comparison of the firm's pay rates to those existing in the labour market, regardless of the particular geographic or industrial markets chosen. Includes the extent to which recruitment (quality and quantity) and retention have been attained during the past period and

⁵⁰Dunlop, "The Task of Contemporary Wage Theory," pp. 129-30.

⁵¹Peitchinis, The Economics of Labour, p. 297.

⁵²Bronfenbrenner and Holzman, "Survey of Inflation Theory," p. 622.

the degree to which they are anticipated as problems in the future.

Wage guidelines

According to Smith, wage guidelines are spurred on during times of inflation because of the government's desire to reduce the rate of general price increase at high employment levels.⁵³ As mentioned earlier, such guidelines are seldom used in isolation. In fact, they usually complement other means of reducing inflation such as tighter control over monetary demand conditions.⁵⁴

Such guidelines are usually based on national changes in productivity.⁵⁵ The percentage wage increase guideline customarily represents the increase in productivity in the economy as a whole. Where firms have recorded productivity increases in excess of the guideline it is expected that such increases will be passed on through lower prices. Conversely, where firms have experienced a lower rate of productivity increase than that represented by the guideline, price increases are warranted. The difficulty in applying a standard rate to all varieties of firms operating under all kinds of conditions is immense

⁵³Smith, Incomes Policies, p. 7.

⁵⁴The reader is directed to the earlier reference to wage guidelines. See above pp. 13-14.

⁵⁵Although the United States used productivity statistics as the base of their wage guidelines for several years, the guideline now apparently includes provision for price increases as well. New York Times (New York), Jan. 27, 1967, pp. 1 and 4.

and often modifications to the rule are required. For example, the United States has found that such problems as unemployment in particular firms or industries, difficulties in attracting sufficient labour, and difficulties associated with attracting necessary capital require special consideration.⁵⁶ Additional problems, similar to those accruing to productivity, also arise in the manner of the influence of foreign prices or internal stability, the difficulty in measuring productivity problems in measuring trends, and the fact that it assumes that the current share of profits is equitable.⁵⁷

The factor is related closely to public opinion, the pressure normally counted on to ensure conformance, usually exerted through the effort of government officials. Ensuring conformance has been a formidable problem and on occasion enforcement sanctions have been required.⁵⁸

Regardless of the problems surrounding the development and implementation of such a guideline, it has appealed to governments on a noneconomic basis because working out guidelines induces management and labour to cooperate on matters that will improve productivity, reduce

⁵⁶From the Annual Report of the Council of Economic Advisors transmitted to the Congress with the January 1962 Economic Report to the President as referred to in Peitchinis, The Economics of Labour, pp. 358-60.

⁵⁷Smith, Incomes Policies, pp. 49-51.

⁵⁸For an example of the application of formal sanctions, the reader is directed to Mabry, Labor Relations and Collective Bargaining, pp. 290-91.

social conflict, and increase political stability. It also appeals to governments on a political basis in that its adoption shows an apparent concern for inflation.⁵⁹

Discussion on formal guidelines has not emanated from Ottawa since 1968 and in view of Smith's recommendations, which do not include emphasis on developing wage guidelines for Canada, it appears doubtful that they will be reactivated: although the Canadian Prices and Wages Commission is currently examining the use of such tools. However, the inclusion of the factor in this study is still warranted because it was applicable in 1968 and because vestiges of guidelines crop up in the news media, such as those published by the Financial Post in March, 1969.⁶⁰

Working definition

Guidelines emanating from Ottawa designed in an attempt to insure wage increases that are congruent with the growth of the economy, usually through the news media.

Cost of living changes

This criterion has been designated as economic even though ethical considerations lie at its heart partly because price changes are a reflection of general economic conditions and partly because such a measurement can be useful in examining the wage-price relationship. In essence the factor is accepted as economic because it is

⁵⁹Smith, Incomes Policies, p. 9.

⁶⁰Financial Post (Toronto), Mar. 22, 1969, p. 17.

useful in ascertaining the consequences or tendencies of wage decisions and the effect of such decisions on the public. Its base is noneconomic in that: "The validity of the cost-of-living argument in an inflationary peacetime period rests upon an ethical presumption, namely, that the real wages of workers should not be depreciated by price movements beyond their control."⁶¹

In Canada, the usual index used to measure changes in the cost of living is the consumer price index. This index is based on a basket of goods customarily purchased by a group of the population during a specified period of time.⁶² An important aspect of this factor is that it cannot be used to compare prices between regions. It serves only as an indicator of the price changes that have occurred from the base year upon which the index is based within the region to which it applies. The Canadian Government is currently testing the feasibility of spatial consumer price indexes which will permit regional comparisons, but this measurement is still in its developmental stages.

The merit of the consumer price index includes the ease of comprehension and application of the factor, its objectivity, and its reasonableness as an argument for the union in times of inflation. However, these merits appear

⁶¹Bernstein, Arbitration of Wages, p. 72.

⁶²For a more detailed discussion of the Canadian Consumer Price Index the reader is directed to Peitchinis, The Economics of Labour, p. 294.

to be engulfed by objections to its use which are most adequately synthesized by Dunlop as follows:

1. the index contains elements, notable food and rent, whose price movements do not necessarily coincide with changes in other wage-determining factors;

2. permanent escalation would produce a stationary real standard of life in defiance of improvement in productivity;

3. sharp differences are evident over the techniques of measurement;

4. the appropriate base date is often a source of contention; and

5. adjusting wages in response to shifts in the index may be unwise economic policy under some circumstances.⁶³

Even though it suffers from many inadequacies (not the least of which is that it may contribute to inflation or at least offer little resistance to inflationary pressures by pushing prices up and hence spiralling the effect)⁶⁴ Kerr found that cost of living changes and earnings were closely related in the short run. This finding indicated a link between the two similar to the relationship of productivity and earnings in the long run.⁶⁵

⁶³John T. Dunlop, Collective Bargaining, Principles and Cases (Chicago: Irwin, 1949), pp. 98-100.

⁶⁴Neil W. Chamberlain and James W. Kuhn, Collective Bargaining (2nd ed., New York: McGraw Hill Book Company, 1965), p. 353.

⁶⁵Kerr, "The Short-Run Behavior of Physical Productivity

It would appear that the factor bears peripheral consideration, particularly as an indicator of general economic conditions. However, it should not be relied upon heavily in the wage decision-making process.

Working definition

Related very closely to general economic conditions but of a more specific nature. The basic measure of such changes emanates in the form of city and national consumer price index monthly calculations, published by the Dominion Bureau of Statistics.

Minimum wage legislation

Minimum wage legislation is developed and enforced at the provincial level. In Alberta the Board of Industrial Relations, under the authority of the Alberta Labour Act, establishes the minimum wage, usually based to a large degree on the presentations of employee and employer representatives.

Early opponents of the establishment of minimum wage levels argued that (1) such legislation may result in pushing the wages of many workers above their marginal productivity and can only lead, therefore, to rising unemployment; (2) the increase in production costs occasioned by such legislation may merely take the form of inflation in the prices paid by consumers; and (3) raising wage rates artificially in the low-wage areas will tend to slow down or even prevent the desirable movement of industry to such

and Average Hourly Earnings," pp. 299-309.

areas. Conversely, proponents of minimum wage legislation contend that (1) fewer employees would be adversely affected by involuntary layoffs than would be benefited by the wage increase; (2) business and employment will not be deterred from continuing to move, over the long run, from the less efficient to the more efficient firms, and, in fact, the movement may be stimulated by the cost pressure exerted by the legislation on marginal firms; and (3) since some labour "exploitation" does exist due to the immobility of labour, minimum wage legislation may perform some service in aiding the lowest paid employees to secure a wage closer to what they could have expected under conditions of perfect competition.⁶⁶

The American experience has indicated that little unemployment has resulted from minimum wage legislation and few marginal firms were forced to close down.⁶⁷ Although a fairly recent study of the effects of the 1956 law in the United States by the Bureau of Labor Statistics noted that twelve low-wage industries have not yet successfully adjusted to the minimum wage change.⁶⁸ Belcher, in his review of minimum wage legislation studies, concludes that the total effect of such legislation has been minor.⁶⁹

⁶⁶Morgan, Labor Economics, p. 582.

⁶⁷Ibid., p. 583.

⁶⁸"Minimum Wage Won't Go Up," Business Week, March 21, 1959, p. 122.

⁶⁹David W. Belcher, "Employee and Executive Compensation,"

Working definition

This factor, legislated through government, must be examined not only in light of its effect at lower levels of the firm but also in terms of how it may influence wage levels throughout the structure.

Other benefits gained at the expense of wages

This paper focuses on factors influencing wage decisions, not the factors associated with the determination of compensation in a form other than wages. However, in order to eliminate the possibility of sample respondents rating the factors which influence wage decisions in terms of non-wage compensation, this factor has been included as a factor in its own right. This inclusion is further justified by the fact that decisions effected with respect to this factor do, in turn, exert an influence on decisions related to wage determination.

This factor includes indirect financial payments, or fringe benefits, and non-financial rewards. Fisher and Chapman's pragmatic concept of fringe benefits is adopted for purposes of defining the factor. Their classification system includes four categorizations: (1) premiums for time worked, (2) pay for time not worked, (3) employee benefits, and (4) employee activities.⁷⁰

Employment Relations Research, ed. by Herbert G. Heneman., et al. (New York: Harper and Brothers, 1960), p. 81.

⁷⁰ Austin M. Fisher and John F. Chapman, "Big Costs of Little Fringes," Harvard Business Review (Sept.-Oct., 1954), p. 38.

Dubin's representative sample of nonfinancial rewards includes (1) job satisfaction (interest and involvement), (2) power pay (a job of greater importance, exclusive jurisdiction over the job), (3) authority pay (promotion, more authority), (4) status pay (giving subordinates opportunities for informal relationships with people of higher authority).⁷¹ Such nonfinancial rewards are closely linked with the issue of worker morale.⁷² Although these rewards are important in their own right, Miller and Form feel that the possibility of the substitution of nonfinancial rewards for financial rewards is limited because status tends to equal financial reward in the long run.⁷³

Although it has been stated that unions exist only to exert a wage-push,⁷⁴ some writers espouse other objectives of trade unions such as those related to indirect financial payment and nonfinancial rewards.⁷⁵ For example, the

⁷¹Robert Dubin, The World of Work (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1958), pp. 241-46.

⁷²This factor is discussed below. See pp. 84-85.

⁷³Delbert C. Miller and William H. Form, Industrial Sociology (New York: Harper and Brothers, 1951), p. 370.

⁷⁴Walter A. Morton, "Wage-Push Inflation," Industrial Relations Research Association. Proceedings of the Eleventh Annual Meeting (Chicago, Ill., 1958), p. 189.

⁷⁵For example, Goldfinger and Kassalow state that unions have other goals such as improving working conditions. Nathaniel Goldfinger and Everett M. Kassalow, "Trade Union Behavior in Wage Bargaining," New Concepts in Wage Determination, pp. 52-53.

behavioral theorists stress the influence of other than wages as motivational forces. They argue that due to the economic latitude existing within imperfect product and factor markets, it appears entirely possible that such factors represent an impact on wage decisions.

Working definition

Examples include such indirect financial payments as paid holidays, life insurance programs, and improved job security; as well as non-financial rewards such as job satisfaction, better working conditions, and training programs.

Living wage

The impact of this factor on wage decisions flows from essentially an ethical base. The factor represents a synthesis of the employer's concept of the "fair wage." The problem of classification of the factor was brought to the fore by Bernstein who felt it was as much ethical as economic.⁷⁶ It is included in the economic group of factors in accordance with the economic criteria embodied by Chamberlain's factual approach to bargaining referred to above.⁷⁷ Although the factor stems from an ethical base --at what level can workers and their families maintain a standard of life at least at the minimum level of health and decency--it is subject to quantification and, hence, its application and analysis in terms of the economy as

⁷⁶Bernstein, Arbitration of Wages, p. 92.

⁷⁷See pp. 31-32.

a whole is practicable.

The problem of determining at what level the living wage should be maintained was emphasized by Dale who indicated that it may vary from a minimum to a comfortable level.⁷⁸ Although the factor is often discussed relative to minimum wages, it is usually measured at a level in excess of minimum wage legislation and, consequently, is a separate and unique factor.

The basis for the ethical consideration is often derived from the governmental agency charged with the responsibility for social welfare. Such agencies must establish basic subsistence levels for those receiving welfare. As a result they are frequently called upon to develop recommendations with respect to the living wage. The establishment and application of such a wage level includes many of the same problems that haunt the consumer price index: the difficulty in determining the group of the population upon which to base the wage level and the fact that it is not based on the firm's ability to pay or related to the economy in general. Basically the problem is that the logic behind such a criterion is economy-wide or regionally based while application is sought at the micro level.⁷⁹

⁷⁸Dale, Sources of Economic Information for Collective Bargaining, p. 24.

⁷⁹Bernstein, Arbitration of Wages, p. 95.

Working definition

A consideration of the "fairness" of the wage in relation to the ability of a worker or group of workers to maintain a desired standard of living. Not to be confused with minimum wage legislation.

Ability to strike or lockout or to resist a strike or lockout

The lockout and strike factors are grouped together because, although they originate from different sources, many of the considerations relating to their uses are common to both. As Chamberlain and Kuhn suggest, "The lockout, as presently practised, is not a distinct action from the union's strike but, rather, constitutes a way of looking at the same action from another point of view."⁸⁰ The strike is by far the more common weapon resorted to because management will usually let the union commence with such action rather than initiate the lockout. Clearly, as long as workers continue to work under current conditions, management really has no economic reason to suspend operations. The importance attached to this factor is evident by the feelings expressed by some union leaders indicating that high wages and better working conditions are not won by argument, but by the only decisive weapon workers have--the strike.⁸¹

The rationale underlying the use of a strike or lockout is essentially economic in nature. Taylor

⁸⁰Chamberlain and Kuhn, Collective Bargaining, p. 180.

⁸¹Ibid., p. 74.

indicates that the party considering such action must be concerned with demand for the product at the time. High demand favours the union while low demand favours management.⁸² Ross states that the propensity of management to take a strike is related to the financial resources of the rank and file.⁸³ Other considerations with respect to the strike revolve around management's possession of strike insurance, its ability to gain the assistance of other firms in the industry, the size of product inventory, and estimates of the union's ability to strike. On the other hand, union considerations include the ability to prevent others from performing the work while its members are on strike, the assistance of other unions, and estimates of management's ability to withstand a strike.⁸⁴ Similar considerations must be made with respect to the lockout with the roles of the parties becoming essentially reversed.

Walton and McKersie make reference to other strategical considerations related to the strike. For example,

. . . the strike which fails to obtain any concessions in the immediate negotiations may nevertheless have some value as a long-term investment. The credibility of a strike threat will be enhanced in the future, whether it is used with the same adversary or with

⁸²George W. Taylor, "Wage Determination Processes," New Concepts in Wage Determination, p. 105.

⁸³Ross, Trade Union Wage Policy, p. 40.

⁸⁴Chamberlain and Kuhn, Collective Bargaining, pp. 173-87.

another who knows of the strike.⁸⁵

The internal organization may be strengthened with a short term strike--identifying an external enemy usually increases the internal solidarity of a group and winning a strike may gain new members.⁸⁶

Working definition

Management considerations of the strike are related to the possession of strike insurance, the financial assistance of the firms in the industry, size of inventory, the demand for the product at the time of the possible strike, and estimates of the union's ability to strike.

The union, considering strike action, must be concerned with the ability to prevent others from performing the work while its members are on strike, the size of a strike fund, the assistance of other unions in the form of sympathy strikes or financial assistance (e.g., international affiliations), and estimates of management's ability to withstand a strike.

The lockout is analagous to the strike factor with considerations essentially reversed as a result of the lockout being under the influence of management initiative.

Noneconomic Factors

The following outline of noneconomic factors has been cast using the same approach used in the discussion of the above economic factors. Several factors, requiring separate treatment for measurement purposes, have been combined in order to avoid redundancy in presentation.

⁸⁵Richard E. Walton and Robert B. McKersie, A Behavioral Theory of Labor Negotiations (New York: McGraw-Hill Book Company, 1965), p. 32.

⁸⁶Ibid.

These factors have been combined because, although they initiate differing and distinct pressures on both management and the employee representative and hence necessitate separate measurement, the foundations upon which they rest are similar.

It is important to re-emphasize, before commencing the review of noneconomic influences, that such influences represent reality because of the imperfect market conditions evident in the economy.

Membership pressures

March and Simon stress the importance of group power in decision-making and accordingly have developed a list of elements which they believe contribute to the formation of group power. These elements include (a) the identification of individuals with the group, (b) the prestige of the group, and; (c) the success of the group.⁸⁷

From the point of view of the employee representative, Ross emphasizes the political considerations involved in the wage decision by pointing out that the central objective of the union is to ensure institutional survival and growth. Hence, political pressures must be reconciled in the bargaining process.⁸⁸ Such political pressures focus

⁸⁷For a more inclusive list of elements the reader is directed to James G. March and Herbert A. Simon, Organizations (New York: John Wiley & Sons, Inc., 1958), pp. 59-61, 65-68.

⁸⁸Ross, Trade Union Wage Policy, p. 13.

primarily on the elected leaders of the employee group. Through the democratic process of election, leaders are induced to conform to membership wishes.⁸⁹ Such desires become operationalized in the form of specific demands from particular occupational groupings with respect to wage structure, the method of effecting the increase (flat dollar amount vs. percentage increases), or the overall level of increase proposed.

Empirical examples of such employee group pressures are numerous. For example, Ross states that it is membership pressure that has stimulated the attainment of increased income through increased wages rather than through decreased prices. The employee representative is striving to receive credit and he feels the only way to gain such recognition is through a direct wage increase rather than through the indirect method of reducing prices, even though the latter could be a more effective method of increasing real income.⁹⁰

In a somewhat similar vein, Taylor indicates that "The general across-the-board increases, so typical of wage settlements in recent years, were not unrelated to the need to gain the approval of the relatively unskilled

⁸⁹For a more complete discussion of electoral influence, the reader is referred to Chamberlain and Kuhn, Collective Bargaining, pp. 194-98.

⁹⁰Ross, Trade Union Wage Policy, as referred to in Morgan, Labor Economics, p. 95.

workers."⁹¹ The degree to which across-the-board increases are successful depends to a large degree on the number and diversity of different power groups within the membership. Conflict of interest is largely related to the heterogeneity of membership.

On the management side, Chamberlain and Kuhn view the role of the manager as a coordinator of multiple interests each of which represents pressures from within the management group. For example, there are divergent goals within units and between units. A department may want the employee representative to win its demands so that such increased compensation will be passed on to management levels or an engineering department may want to introduce mechanization but only if the cost of labour is excessive. Hence, they may favour high employee representative demands.⁹² They argue that:

It becomes evident that, like the union, the corporation is a political system and that interest groups within that system (as well as the ongoing nature of the system itself) generate compulsions which have their effect upon managerial decisions and the collective bargaining relationship.⁹³

These factors are measured separately in order to isolate the differing impact of each on wage decisions. For as Shultz relates, although employee membership

⁹¹Taylor, "Wage Determination Processes," p. 99.

⁹²Chamberlain and Kuhn, Collective Bargaining, pp. 217-18.

⁹³Ibid., p. 221.

pressure has its greatest influence on the employee representative decisions, politics within the employee group has a definite impact on management.⁹⁴ Similarly, it is necessary for the employee representative to include an analysis of management membership pressures in effecting his wage decisions. As Walton and McKersie state:

In a sense the chief negotiator is the recipient of two sets of demands--one from across the table and one from his own organization. His dilemma stems from the conflict at two levels: differing aspirations about issues and differing expectations about behavior.⁹⁵

Working definition

Management membership pressure.--The influence of general management officials or specific functional groups on wage level and structure decisions, either upward or downward. Management may also receive pressure for higher increases from management groups who feel that the magnitude of increases in pay rates at lower levels will be reflected in management salary levels.

Employee membership pressure.--The degree of pressure exerted by the overall employee membership for increased wages. Such pressure can be operationalized through the election of employee representatives. Particular occupational groupings may also impose more specific demands with respect to wage structure (internal wage level relationships), form of increase (flat dollar amount vs. percentage increases), or overall level of increase.

Leadership influences

As mentioned above, membership pressures are often influential in determining the actions of employer and

⁹⁴Shultz, Pressures on Wage Decisions, p. 124.

⁹⁵Walton and McKersie, A Behavioral Theory of Labor Negotiations, p. 6.

employee representatives. However, leadership influences are not necessarily related to membership pressures. There is definitely latitude within such pressures for the leader to achieve objectives unrelated to any other factor, such as personal objectives.

The impact of leadership influence is especially evident when outsiders, such as labour relations consultants or labour lawyers, are brought into negotiations by either or both parties. Although such outsiders must correctly recognize various internal and external pressures in order to perform adequately, they are not as personally tied to the bargain as leaders from within the respective groups and, consequently, will tend to impose more of their own peculiar philosophies on the bargain.⁹⁶

Even in the case of leadership from within the parties, much latitude remains for the exercise of personal preferences. On management's side, Chamberlain and Kuhn contend that more opportunity than ever exists in the corporation for freedom in decision-making in view of the decrease in control from stockholders. Under such conditions, the way is clear for management representatives to achieve the goals of status and prestige.⁹⁷ Ross adheres to the philosophy that both union and management goals serve, in part, the personal ambitions of the respective leaders.

⁹⁶This statement is supported by Chamberlain and Kuhn, Collective Bargaining, pp. 58-70.

⁹⁷Ibid., pp. 212-13.

Further, he feels that the union leader has less restrictions because wages are vaguer than profits, thus he has even more discretion than the management representative.⁹⁸

Walton and McKersie agree that leadership influence is a unique phenomenon and state that key leaders in organizations have an important influence in pointing the direction that their institutional relationship will follow.⁹⁹ A good example of such influence is the approach to collective bargaining developed in the United States by Lemuel R. Boulware for General Electric. This approach has seen service in several other industries until its recent demise as a result of the National Labor Relations Board declaration that it contravenes the principle of bargaining in good faith.¹⁰⁰

Working definition

Employee leadership influence.--The ability of the individual fulfilling the leadership role for the employee group to seek or instigate objectives not resulting from any influence encompassed by the remainder of factors. For example, he may introduce demands based on personal goals such as prestige and instill the desire for a higher settlement than would

⁹⁸The writings of Ross as referred to by Morgan in Labor Economics, pp. 92-93.

⁹⁹Walton and McKersie, A Behavioral Theory of Labor Negotiations, p. 193.

¹⁰⁰Boulwarism involves the strategy of adopting a "take it or leave it" attitude with respect to a wage proposal--a unilateral demand. Chamberlain and Kuhn, Collective Bargaining, p. 57. This strategy was declared a breach of good faith by the National Labor Relations Board according to Edward Peters, "Crisis Bargaining," Personnel Journal, XLIV (Oct., 1965), 466.

have otherwise resulted.

Management leadership influence.--Essentially comparable to employee leadership influence. For example, a manager's personal philosophy with respect to the rights of labour may influence decisions related to wage considerations.

Bargaining skill or strategy

Walton and McKersie stress the social side of negotiations--the interaction between two or more complex social units which are attempting to define or redefine the terms of their independence. They feel that the need to defend one's self-interest and at the same time engage in joint problem solving vastly complicates the selection of bargaining strategies and tactics. For example, the tactics of distributive bargaining (resolving conflicts of interest) are designed to obscure, not to clarify, resistance points. If one side reveals his resistance point (basic level of achievement he desires), this will probably induce the other side to press for at least this amount. Such strategies, resulting in an unclear picture with respect to each other's real intentions, can often culminate in a strike.¹⁰¹

The use of many of the economic factors, particularly the "wage criteria," for purposes of justification rather than as the base for wage decisions illustrates the strategic side of the bargaining process. Under such

¹⁰¹Walton and McKersie, A Behavioral Theory of Labor Negotiations, pp. 3, 54, 56.

conditions, it is extremely difficult to bargain on a factual basis and the intent to obscure, rather than clarify, predominates. According to Chamberlain and Kuhn, the level of agreement made is greatly affected by the skill with which the parties negotiate. Furthermore, they believe that tactics and bargaining skill are at least as important as the economics of the situation in determining what concessions are won or granted.¹⁰²

Taylor hypothesizes that "negotiating tactics and ritual have come into being to mask union weaknesses deriving from the employees' unwillingness to strike and management weaknesses resulting from the employer's inability to forego production."¹⁰³ For whatever the reason, out of strength or out of weakness, there can be little doubt that the skill with which the parties attempt to narrow their differences does play a commanding role in effecting the bargain.

Working definition

Employee bargaining skill or strategy.--The effect of the employee representative's skill in the negotiation of the wage structure and level.

Management bargaining skill or strategy.--The effect of the management representative's skill in the negotiation of the wage structure and level.

¹⁰² Chamberlain and Kuhn, Collective Bargaining, pp. 56, 63.

¹⁰³ Taylor, "Wage Determination Processes," p. 103.

Employee-management relations

To quote Walton and McKersie, "Attitudes, feelings, and indeed the tone of the relationship represent an extremely important dimension of labour relations."¹⁰⁴ The issues themselves often involve human values. The weapons chosen involve sanctions which can exert a strong influence on the tone of the relationship. Negotiation of the agreement represents only the beginning of the transaction.

Dale and Shultz both refer to the importance of personal relationships and the history of labour relations in the collective bargaining process.¹⁰⁵ Walton and McKersie actually attempt to define the relationship pattern (a set of reciprocal attitudes) on the basis of several specific attitudinal dimensions: (1) motivational orientation and action tendencies toward each other (competitive--individualistic--cooperative), (2) beliefs about the other's legitimacy, (3) feelings of trust toward the other, and (4) feelings of friendliness--hostility toward the other. They follow this up with ways of improving negotiations by using similar language, introducing mutual problems or goals, referring to mutual successes, noting similar dislikes toward outsiders, and

¹⁰⁴Walton and McKersie, A Behavioral Theory of Labor Negotiations, p. 3.

¹⁰⁵Dale, Sources of Economic Information for Collective Bargaining, p. 164; and Shultz, Pressures on Wage Decisions, p. 129.

de-emphasizing those differences which do exist between party and opponent.¹⁰⁶

This factor pervades negotiations, and regardless of the importance attached to apparently unassailable economic criteria, the degree to which bargaining is conducted on a mutually effective basis is largely determined by the attitudes of the parties toward each other.

Working definition

The degree of mutual confidence based generally on past relations, often intertwined with each party's perception of the other's ethics and philosophies.

External social pressures

An organization does not operate within a vacuum. It influences and, in turn, is influenced by the industrial system of which it is a part. Decision-making is to a large degree a product of this system. The growth of the great industrial system owes much of its present success to the highly competitive atmosphere from which it emerged. Today, particularly with the trend toward oligopolistic industries, the need for reciprocity among organizations creates pressures for conformance rather than competition in many spheres of decision-making. Galbraith illustrates this point with reference to pricing decisions when he states that: "Stable prices reflect,

¹⁰⁶Walton and McKersie, A Behavioral Theory of Labor Negotiations, pp. 185, 230.

in part, the need for security against price competition."¹⁰⁷ Certainly the importance of conformance can be over-emphasized, particularly in industries where organizations are small and numerous. Competition remains intense in such industries and it is these organizations that tend to most strongly resist pressures for conformance. However, even at the level of competition, the need for social acceptance is not neglected.

Both management and the union feel the influence of decisions made by their counterparts in similar product markets. According to Dubin, these decisions culminate in a pressure for conformance which often forces the use of comparable pay rates as a base for wage decision-making. Although the use of such a criterion originates with decisions made by management, similar pressures on the union tend to reinforce its use.¹⁰⁸ Conformity in wage setting takes the form of collusion. That collusion in wage setting exists is a conclusion drawn by Lester in his probe of interfirm wage uniformity,¹⁰⁹ and acts to confirm the efficacy of the social pressure factor.

Such pressures for conformance are often transmitted through management or union associations. In the case of

¹⁰⁷Galbraith, The New Industrial State, p. 204.

¹⁰⁸Dubin, The World of Work, pp. 229-30.

¹⁰⁹Richard A. Lester, "A Range Theory of Wage Differentials," Industrial and Labor Relations Review, V (1951-52), pp. 483-500.

management, firms in an industry do not wish to start price or wage rivalries which could create competition resulting in lower profits or manpower raiding. Although unions usually have a greater commitment to remain competitive and thus stem the effectiveness of rivals in attracting their numbers, the large well established unions also tend to seek a course of mutual survival. Typically, it is in the smaller, more numerous unions where growth is a necessity for survival that competition among rivals is intense. Such competition is operationalized through the political system of the union and is manifested in terms of membership pressures.

Regardless if such pressures are the key to the determination of the wage level or whether they simply cause the operationalization of other factors they are vital to a fuller understanding of the wage decision-making process.

Working definition

External social pressure (management).--The pressure from peer groups (other firms) encouraging conformance to wage levels already determined in the region or industry.

External social pressure (employees).--The threat of unions or other unions organizing employees currently organized by different representatives; in addition to the pressure from other labour organizations encouraging conformance to the wage levels already determined in the region or industry.

Government influence

With the problems of inflation and costs of industrial strife currently facing heads of state throughout the world, governments have found themselves becoming more and more involved in the workings of the industrial relations system. Further, as the aggregations of power grow larger on each side, the government finds itself pulled into the realm of contract negotiation, and the jockeying for a favourable position with respect to the government becomes an important activity for each negotiator.¹¹⁰

Such government involvement may take the form of formal and legally enforceable sanctions such as the practice of compulsory arbitration adopted by Australia or it may be a more informal approach such as that referred to earlier in discussion of the wage guidelines factor.¹¹¹ Formal government influence is operationalized with the aid of legislation while informal influences are usually carried out through moral suasion. The latter approach relies heavily on the pressure of public opinion while the former is a direct government tool. Whether it is the effectiveness of legislation currently in operation or

¹¹⁰Walton and McKersie, A Behavioral Theory of Labor Negotiations, p. 104.

¹¹¹The influence of wage guidelines has been referred to earlier under economic factors. Such categorization does not detract from the fact that it is a government influence but for purposes of this paper, government influence is treated as a noneconomic factor.

the introduction of new amendments to old legislation, its impact can influence wage decisions. Often the very threat of legislation changes is enough to promote a more responsible approach to collective bargaining. However, it is the actual change that undeniably alters the decision-making process. For example, the Government of Alberta, after finding that the parties to the collective bargaining process were using each step of the conciliation process as a matter of course rather than as a means of impasse breaking, changed the Alberta Labour Act so that a decision made at the first step (the conciliation commissioner) could be designated as a conciliation board decision (second step of the process) if it was felt that the parties were simply going through the motions.¹¹² Such a change will require a re-examination of decision-making strategy during the bargaining process.

Legislation has been central to the entire labour relations movement and will probably continue to be a major factor. It is the core of government influence. However, most certainly, on a day-to-day basis, informal pressures do influence collective bargaining decisions.

Working definition

Government can affect wage decisions through informal moral suasion or more directly, on a provincial basis through the threat of injunctions or remedial legislation.

¹¹²The reader is directed to Section 86 of The Alberta Labour Act.

Public opinion

To a great degree the demand for assurances that responsible decisions are effected in the collective bargaining process flows from the alleged consequences of such decisions on the public sector. Outcomes which are unfavourable to the public (such as those related to inflationary tendencies or higher levels of unemployment) can arouse the force of unfavourable public opinion. According to Chamberlain and Kuhn, employee and management representatives attempt to take advantage of this phenomenon: "By picketing, newspaper advertising, press releases, or radio speeches each may try to arouse the public in the hope that the pressure of governmental officials, social disapproval, and loss of public favour will constitute a further disadvantage which the other will be unwilling to incur." They feel that the government is the most effective source through which public opinion can be focused.¹¹³

Management probably has the greatest regard for this factor because public opinion is readily transmitted through product demand. In fact, Hazard states that a management's quest for status is actually an attempt to avoid inferior status with its implications for sales purposes.¹¹⁴ It is the company's desire for prestige,

¹¹³Chamberlain and Kuhn, Collective Bargaining, pp. 180-81.

¹¹⁴Hazard, "Wage Theory: A Management View," p. 39.

reputation, and leadership that Dale feels will constitute the level of wages which will be determined within the points of minimum and maximum economic parameters.¹¹⁵

The union also feels the sting of public opinion but in a less direct manner. Such pressure is usually manifested through government influence. The impact of this factor tends to reinforce the use of comparable wage rates in view of the ease with which it can be used to justify wage decisions to the public.

Perhaps the influence of public opinion is best synthesized by Walton and McKersie when they stated that:

Bargaining through the newspapers has become an important facet of contract negotiations. In recent years negotiations in the steel, railroad, and airframe industries have given ample evidence of the technique used by each side for taking a committed position before outsiders, the public and their representatives.¹¹⁶

Working definition

The effect of public influence. For example, either management or the employee representative may be seeking a prestigious position within the community.

Intrinsic job worth

This factor encompasses those considerations related to the intrinsic nature of the job. Such considerations are normally measured with a system of job

¹¹⁵Dale, Sources of Economic Information for Collective Bargaining, pp. 162-63.

¹¹⁶Walton and McKersie, A Behavioral Theory of Labor Negotiations, p. 104.

evaluation¹¹⁷ although such a system does not totally disregard external environmental constraints.¹¹⁸ It usually serves as a basis upon which negotiations central to the analysis of economic factors can be conducted.¹¹⁹ For the purposes of this paper it is treated primarily as representative of internal influences. Similarly, while it applies primarily to wage structure, changes in structure do relate directly to changes in the overall level of wages. For example, the pairing of two large groups of jobs based upon the nature of work (e.g., level of complexity or responsibility), regardless of pay market comparisons or other economic criteria, can directly influence the overall wage level if it is decided to equate the two for pay purposes.

Early references related to this factor are found in the just-price wage theory which emphasized equity and

¹¹⁷For explanations and discussions of the four main systems of job evaluation, the reader is directed to Herbert J. Churden and Arthur W. Sherman, Jr., Personnel Management (Cincinnati, Ohio: South-Western Publishing Company, 1968), pp. 548-62; and Belcher, Wage and Salary Administration, pp. 239-310.

¹¹⁸Two studies which found that a successful job evaluation system must include recognition of external conditions are Helen Baker and John M. True, The Operation of Job Evaluation Plans: A Survey of Experience (Princeton, N.J.: Industrial Relations Section, Princeton University, 1947), pp. 58-72; and Clark Kerr and Lloyd H. Fisher, "Effect of Environment and Administration on Job Evaluation," Harvard Business Review, XXVIII (May, 1950), p. 77.

¹¹⁹Dunlop's job cluster theory is based on this tenet. Dunlop, "The Task of Contemporary Wage Theory," pp. 117-39.

tying wages to status.¹²⁰ Adam Smith also conceived of the possibility of wage differentials based upon such internal factors as hardship and difficulty of learning the job.¹²¹ For a more contemporary treatment of the factor, the reader is directed to Dunlop's job cluster system which also acknowledges the importance of internal considerations upon wage decisions.¹²²

In his range theory on wage differentials, Lester indicates that job evaluation is a definite influence upon wage determination.¹²³ While Bernstein found that intrinsic job worth is rarely used as a criterion by arbitrators,¹²⁴ Hazard concluded that management considers internal equity to be second only in importance to comparable wage rates.¹²⁵

Whether intrinsic job worth as measured through job evaluation has a direct impact (in which case job evaluation is a negotiable item) or whether it has an indirect impact (where job evaluation is carried out on a unilateral basis by management) it does constitute a factor to be considered in the wage decision-making process.

¹²⁰See Chapter I, p. 17.

¹²¹See Chapter I, p. 18.

¹²²Dunlop, "The Task of Contemporary Wage Theory," pp. 117-39.

¹²³Lester, "A Range Theory of Wage Differentials," pp. 483-500.

¹²⁴Bernstein, Arbitration of Wages, p. 90.

¹²⁵Hazard, "Wage Theory: A Management View," p. 45.

Working definition

The relative value of each job, usually determined with the aid of some means of job evaluation. This factor represents the effect that level of work performed has on internal salary relationships regardless of rates for comparable jobs found within the labour market.

Worker morale

Although employees are not motivated to work for money alone, wages do rank highly as a source of positive worker morale.¹²⁶ Chamberlain and Kuhn make reference to the fact that both the employee representative and management aspire to win the primary loyalty of the same group of employees.¹²⁷ Hence, both recognize the impact of the morale factor upon wage decisions.

The approach that is taken by both parties during the negotiation process can have a definite impact upon the morale of the work force. For example, management is concerned with presenting an initial proposal that is low enough for effective bargaining but not so low as to raise the indignation of the work force. Such a lowering in morale can have a direct impact upon production. In addition serious member-dissatisfaction can also lead to

¹²⁶ Examples of studies supporting such a conclusion include: Charles R. Walker and Robert H. Guest, The Man on the Assembly Line (New York: Harper and Row, 1952; Reynolds and Shister, Job Horizons; and Zaleznik, Christensen and Roethlisberger, The Motivation, Productivity and Satisfaction of Workers.

¹²⁷ Chamberlain and Kuhn, Collective Bargaining, p. 217.

demands for greater militancy in the future.¹²⁸ Both of these possibilities management wishes to avoid.

On the union side, the negotiator must be careful to present an initial proposal that is high enough for effective bargaining but not so high that the worker's hopes are raised to an unrealistic level. Failure to reach that level could reduce morale and have serious consequences in terms of political action within the union. Poor morale within the union may also cause lethargy which can seriously affect the union's attempts to gain group solidarity in support of its proposals.

In the final analysis, both parties must be concerned about what affect the final negotiated wage level will have on morale. In view of this concern, worker morale may pervade the whole of the wage decision-making process.

Working definition

The effect that unreasonable demands by either party may have on employees' attitudes toward the employer or employee representative and hence his relationship with either.

¹²⁸Taylor, "Wage Determination Processes," pp. 102-03.

CHAPTER III

RESEARCH PLAN

According to Joseph Shister, a theory of collective bargaining should include two parts: (1) a detailed and operational analysis of each of the independent variables that enters into the framework--the anatomy of the model, and (2) a detailed and operational analysis of the interaction of these variables--the physiology of the model.¹ While he applies this criterion to the broad field of collective bargaining, it is equally applicable to that aspect of collective bargaining with which this study is concerned--the wage decision-making process.

The preceding chapter on factors influencing wage decisions provides the anatomy of the research model. This chapter fulfills the second requirement--the physiology of the model--and outlines the methodology through which the model was subjected to empirical testing.

While several authors feel that it is entirely feasible to isolate the variables, or factors, entering

¹Shister, "Collective Bargaining," p. 51. This presentation is consistent with Kerlinger's definition of theory: ". . . a set of interrelated constructs (concepts), definitions, and propositions that presents a systematic view of phenomena by specifying relations among variables, with the purpose of explaining and predicting the phenomena." Kerlinger, Foundations of Behavioral Research, p. 11.

into the wage decision,² evidence conflicts as to the relative impact of these factors.³ The fact that a lack of consistency exists among these studies has stimulated much research and, similarly, provided much of the motivation behind this study. However, although research has focused on the relative importance of factors in wage decisions, little research has centered on the relationship between the factors influencing wage decisions and the degree of strife emerging in effecting such decisions. It is this latter issue to which the study was initially addressed.

Hypothesis 1

Theories have been developed which purport to portray the underlying causes of strife arising from the collective bargaining process. For example, Mabry's net-gain theory of collective bargaining describes ingredients inherent in the bargaining process which stimulate conflict. His theory is based on the pain-and-pleasure principle, where the ability of either party to obtain benefits requires the other party to concede these benefits, that is, to give up something of value. Further, he states that valuable items are not relinquished willingly or freely when no object of equal value is offered in return.

²Shister, "Collective Bargaining," p. 47, states that "Thanks to Chamberlain, Dunlop, and others, we now know quite clearly what these variables are . . ." Belcher, "Employee and Executive Compensation," p. 79, also develops an aggregate of variables.

³Belcher, "Employee and Executive Compensation," p. 79.

Hence, a party must be forced into the relinquishment. It is through the activation of the strike or lockout that pain can be inflicted on the other party. Therefore, the cause of strife is deemed to be proportionate to the degree of coercion felt to be necessary to cause the other party pain and thereby gain benefits from him.⁴ But why is the need for such action felt to be necessary? Why do the parties disagree as to that which comprises an acceptable bargain?

A major purpose of this study is to pursue one of the possible reasons for the disagreement and strife arising from the wage decision-making process. Chamberlain, in his theory of collective bargaining, points to the degree to which all information relevant to the issue is shared as an important indicator of the likelihood of strife. He contends that where information is freely shared less strife arises in effecting an agreement.⁵ Such an appraisal appeals to one's "common sense" but appears to only offer a partial explanation of the underlying causes of strife. For example, although data may be exchanged freely, there may be disagreement as to its applicability in view of differing emphasis accorded by each party to the factor which the data is deemed to represent. In addition, there are noneconomic factors influencing the

⁴Mabry, Labor Relations and Collective Bargaining, pp. 208-09.

⁵Chamberlain, Collective Bargaining, pp. 121-39.

bargain for which information cannot be exchanged on a quantifiable basis. Consequently, it follows that an investigator must determine the degree to which the parties are in accord with respect to the relative impact of the factors governing each of their decisions before making a judgement on the likelihood for strife to arise during the negotiation of the agreement in question. However, such logic can only be granted credibility when it is supported with empirical verification. An attempt to achieve such empirical verification stemmed from the following hypothetical base:

If the management and union representatives participating in the negotiation of a particular wage agreement have common acceptance regarding the identification and relative rating of the factors which govern each of their decisions, such agreement is reached with a minimum of strife.

It is held that the weighting of factors in effecting particular agreements reflects the perceptions of each party as to the key issues requiring discussion. Consequently, the more comparable the weightings, the more the opportunity exists for a common base of discussion and the lower the tendency will be for the emergence of strife.⁶ However, this statement is by no means unequivocal. On the contrary, if the weightings of the factors are comparable there also

⁶This statement is congruent with Walton and McKersie's methods of improving negotiations (reducing strife) which center on common bases for interaction such as introducing common problems or goals and, in general, deemphasizing those differences which do exist between parties. Walton and McKersie, A Behavioral Theory of Labor Negotiations, p. 230.

lies a base for strife as a result of the problems of interpretation with respect to the practical application of the factor. Furthermore, there exists the possibility that, if the weightings are dissimilar, agreement may be reached quickly with less strife because the line of least resistance will be pursued. That is, since each party has a different concept of the importance of the factors, they will each not have had occasion to build a case on the same factors. Hence, there will be less resistance toward accepting the arguments of the other and vice versa. In the latter case, agreement is reached with little strife even though the underlying factors influence each party differently. However, the importance of establishing a common base of discussion, deemed to be represented by common factor weightings, is felt to be greater than the problems associated with the interpretation and application of the factors and, in consequence, sets the base for the precepts of the first hypothesis.

Hypothesis 2

Ever since the development of the earliest theories associated with wage decision-making labour economists have emphasized the futility of a worker's organization aimed at the procurement of higher wages. For example, both Mill and Ricardo developed theories which postulated a fixed amount of money out of which workers would be paid only at a level of subsistence. Any increases gained

by organized workers could only be at the expense of the remainder of workers.⁷ Although the logic behind any fixed fund out of which wages would flow has been discarded, the inability of the worker organization to have any impact on the wage decision is still accepted in many quarters, particularly by the marginal theorist.⁸ Such logic is borne out by the studies of many economists which tend to indicate that over the long run wages gained in unionized industries do not proceed at any greater a rate than do those in nonunionized industries.⁹ There are some who do not support this proposition¹⁰ and many economists recognize the ability of the union to have an upward effect on the wage level and wage structure of the firm in the short run.¹¹ The latter postulate, a basic tenet of the

⁷These theories were described in the earlier section on wage theory. See pp. 17-20.

⁸Clark Kerr in "Labor's Income Share and the Labor Movement," New Concepts in Wage Determination, p. 264, makes reference to the marginal theorists' view of the impact of the union on wage decisions. He states that they were not impressed with the ability of trade unions to raise labour's share of income.

⁹See for example Peitchinis, The Economics of Labour, p. 269 and pp. 378-83 or George H. Hildebrand, "The Economic Effects of Unionism," A Decade of Industrial Relations Research, p. 100.

¹⁰Ross in Trade Union Wage Policy, pp. 132-33, feels that unions have had an impact on wage level changes. Likewise, Charles A. Myers in, "Empirical Research on Wages," Industrial Relations Research Association. Proceedings of Sixth Annual Meeting, pp. 241-51, agrees that the union can exert a political pressure on wage decisions, thereby affecting the level.

¹¹For example, Taylor in "Wage Determination Processes,"

institutional theorist, is one which received consideration in this study.

The method adopted for the investigation of the impact of the union in the short run at the micro level¹² involves the examination of the dynamics of wage decision-making. The basic question posed is: If the union does exert influence over wage decisions, how is such impact transmitted through the wage decision-making process? It is the contention of this study that such impact can be ascertained through the juxtaposition of an aggregate measurement of the relative weights assigned to the factors influencing wage decisions by bilateral management representatives with a similar measurement of factors influencing the wage decisions effected by unilateral management representatives. Differences in such weightings are deemed to represent the influence of the union. This is not to say that the union does not also impose its will through the manner in which factors applicable in both unilateral and bilateral circumstances are interpreted. However, whereas management could choose whether or not economic questions of an ethical nature

pp. 111-13 feels that unions do have an influence on the wage decision in the short run. Morgan in Labor Economics, pp. 85-101, recognizes the impact of the union in short run wage determination.

¹²Long run macro means of measuring union impact center on statistical studies of the outcomes of wage decisions over extended periods. Such an approach is not feasible in the short run at the micro level.

should receive emphasis, it is likely that, under collective bargaining, unions will take steps to ensure that such factors receive consideration. Hence, factor weightings will differ. In addition, the force of the union will be imposed through various noneconomic factors, the impact of which is probably smaller under unilateral conditions. It is this impact, one which is manifested in terms of wage level and structure, which the study attempted to isolate.

The following hypothesis was designed to operationalize the investigation of the impact of the union and it has as its base the precepts of institutional theory:

Management representatives operating within a framework of collective bargaining place a different emphasis on particular factors and tend to rank economic factors, especially those devoid of ethical undertones, lower than do those operating within a system of unilateral wage determination.

Hypothesis 3

A great many studies have been conducted on the impact of various factors on wage decisions. For example, Dale found that management tended to rank the cost of living first with comparable pay rates and profits falling second and third, respectively. Unions concurred with the cost of living standing but placed standard of living second.¹³ Dale dealt primarily with economic factors but

¹³Dale, Sources of Economic Information for Collective Bargaining, pp. 9-10.

other authors have examined the influence of both economic and noneconomic factors. For example, Lester's study of company wage policy found community wage levels to be the principal pressure on wage decisions but also discovered criteria of a noneconomic nature such as fairness, employee loyalty and satisfaction, and union pressures to rank highly.¹⁴ Similarly, although Shultz established that the major wage level determinant for firms in the shoe industry in Brockton, Massachusetts was vigorous competition in the product market, the political pressures of the union also had extensive impact.¹⁵ Reynolds concurred that the union did exert an impact on the wage decision but added that such impact was based to a large degree upon the union's consideration of economic factors.¹⁶

Belcher concludes that only limited reliance can be placed upon such findings until further evidence from other local labour markets under different conditions and at different times is forthcoming.¹⁷ Shister also calls for further examination of the factors influencing wage decisions. He feels that analysis would do much to resolve the debate on the respective merits of frameworks emphasizing

¹⁴Richard A. Lester, Company Wage Policies (Princeton, N.J.: Princeton University Press, 1948), p. 42.

¹⁵Shultz, Pressures on Wage Decisions, p. 137.

¹⁶Lloyd G. Reynolds, The Structure of Labor Markets (New York: Harper and Brothers, 1951), Ch. 6.

¹⁷Belcher, "Employee and Executive Compensation," p. 79.

so-called structural forces (economic) and those stressing so-called human relation factors (noneconomic).¹⁸ This study was designed in an attempt to supply aggregate information relative to these findings. Hopefully, such information will further the work already conducted by the preceding empiricists.

The emergence of such information was brought forth with the assistance of the following hypothesis. The development of this hypothesis is consistent with the logic outlined in the development of the second hypothesis. That is, in the short run, the union will have an impact on the wage decision in the manner of greater emphasis placed on noneconomic factors and economic factors with strong ethical undertones.

Economic factors, especially those devoid of ethical bases, do not serve as the primary criteria for management or the union in the determination of wage levels.

These hypotheses served as the framework for the analysis of factors influencing wage decisions. The following steps were designed to test the efficacy of the relationships posited by each hypothesis.

Measuring Instrument

Central to the testing of the hypotheses is the determination of the weights that each factor bears upon the wage decisions effected by each party. This then,

¹⁸Shister, "Collective Bargaining," p. 51.

becomes the requirement which the measuring instrument must be designed to fulfill. Such weights are extremely difficult to estimate in view of the many nonquantifiable noneconomic factors influencing such decisions and the complex manner in which the quantifiable economic factors are merged in effecting the decisions. The complexity of the interaction and flexibility of the wage decision-making process precludes direct measurement of the factor weights. This measurement was instead accomplished indirectly with the aid of a psychological measuring instrument.

A variety of psychometric methods are available for psychological measurement and include such psychological scaling methods as pair comparisons, rating scales, equal-appearing intervals, ranking methods, and their variations. The chief purpose of these methods is to evaluate stimulus objects on linear scales.¹⁹ In this case, the stimulus objects consist of the factors influencing wage decisions. The factor weight becomes operationally defined as the weight assigned on the rating scale.

The particular measuring instrument chosen for this project, the graphic rating scale, falls in the category which includes various other scales such as numerical, standard, accumulated points, and forced choice. The technique adopted is referred to in Bartlett, Heermann

¹⁹J. P. Guilford, Psychometric Methods (2nd ed.; New York: McGraw-Hill Book Company, Inc., 1954), p. 5.

and Rettig's comparison of six different scaling techniques,²⁰ but draws most heavily upon Eckenrode's adaptation of the technique in his study of weighting multiple criteria.²¹ In this method the factors are presented in random order next to a continuous scale marked off in units from 0 to 10. The rater is asked to draw a line from each factor, which has been previously defined, to any appropriate point on the value scale. He is permitted to select points between numbers or to assign more than one criterion to a single position on the scale. The technique was applied to the only observers with intimate knowledge of the impact of such factors, the immediate participants to the wage agreement or adjustment (See Appendix A for the full measuring instrument and Appendix B for an example of a completed graphic rating scale).

The choice of this particular technique is based primarily on the applicability of the tool in relation to practical requirements of the study. In terms of reliability and validity many psychologists have found all scaling techniques to be quite comparable.²² The following paragraphs serve to enlarge on the specific reasons why

²⁰Claude J. Bartlett, Emile Heermann, and Salomon Rettig, "A Comparison of Six Different Scaling Techniques," The Journal of Social Psychology, LI (1960), 343-48.

²¹Robert T. Eckenrode, "Weighing Multiple Criteria," Management Science, XII, No. 3 (Nov., 1965), 180-91.

²²P. M. Symonds in, "Notes on Rating," The Journal of Applied Psychology, IX (1925), 188-95, concluded that under ordinary conditions ratings give results as reliable

This technique appeared to be most practical for purposes of this study.²³

The technique is simple, easily administered, and tends to require minimal rater time. This criterion is extremely important in the case of the parties negotiating collective agreements. Time pressures on these people are onerous, particularly on those negotiating and enforcing several agreements; hence, the technique requiring the least time must be highly regarded. Similarly, the fact that the technique is interesting and requires little added motivation greatly enhances the ease with which returns can be completed and forwarded. An interesting technique has further merit in that Conrad has found that raters tend to do a better job if they become interested in the ratings they make.²⁴

as those obtained from the ranking method. E. S. Conklin and J. W. Sutherland in "A Comparison of the Scale of Values Method with the Order of Merit Method," The Journal of Experimental Psychology, XI (1923), 44-57, found ratings to be more reliable than rankings. Salomon Rettig, Frank N. Jacobson, and Benjamin Pasamanick in "The Magnet Board Rating Technique," The Journal of Psychology, XLV (1958), 201-6, found the intercorrelations between the paired comparison, the Likert and Thurstone's equal appearing intervals, the magnetic board and graphic rating techniques and the ranking technique to vary from .982 - .997 with similar results obtained with respect to reliability comparisons. Eckenrode's "Weighing Multiple Criteria," p. 189, continues to support the previous findings, that is, data on judgments are unaffected by the method used to collect them.

²³These arguments rest largely on the evaluation of rating techniques, particularly as related to graphic scales, advanced by Guilford in Psychometric Methods, pp. 268 and 297.

²⁴H. S. Conrad, as referred to by Guilford in

The wage decision-makers, rather than trained observers, rated the factors, an approach that could have had an unfavourable effect on the quality of ratings. However, the graphic rating scale tends to ameliorate this deficiency in that it can be used effectively with psychologically naive raters who have had a minimum of training. Another aspect which could have unfavourable repercussions is the large number of factors (22) requiring rating. This problem also appears to be of minimal consequence according to Guilford. Large numbers of stimuli are permissible, although even the method of ranking becomes difficult and irksome when there are more than 30 to 40 stimuli.²⁵ In addition, the fact that the raters were not naive with respect to the use of the factors plus the fact that verbal dexterity is an important ingredient in negotiating may have precluded difficulties in conceptualizing with respect to a large number of factors. In a similar vein, Conrad has found that raters do better if they have educational and professional backgrounds similar to those of the "ratees."²⁶ In our case the

Psychometric Methods, p. 294.

²⁵The fact that large numbers of stimuli can be rated is also born out by Bartlett, Heermann, and Rettig's "A Comparison of Six Different Scaling Techniques," pp. 343-48, where twenty stimuli were rated; and by Rettig, Jacobson, and Pasamanick's "The Magnetic Board Rating Technique," pp. 201-6, where twenty-two stimuli were considered.

²⁶H. S. Conrad, as referred to by Guilford in Psychometric Methods, p. 294.

"ratees" are the factors and the raters definitely do have the education and background necessary to deal with the ratings requested of them.

The remainder of the evaluation of this technique centers on the length and presentation of the value line. There are many ways in which the value line, with which the factors are rated, can be displayed. The line can be segmented or continuous and, although Guilford prefers a continuous scale, the segmented approach was adopted in order to provide some visual reference points for the rater. The number of segments can be varied. For example, Rettig, Jacobson, and Pasamanick chose to use 100 divisions²⁷ while Eckenrode used only ten.²⁸ The smaller number of ten was adopted for this study simply because the divisions served only as broad points of reference.

Guilford indicates that the scale line should be at least five inches long but not much longer. It should be long enough to allow for the finest discriminations that raters can give. However, this criteria is based upon the rating of one stimuli on the line. Sparse information is available with respect to the length of scale preferable for the rating of multiple criteria. Eckenrode makes no reference to scale length²⁹ and even if he did, it would

²⁷Rettig, Jacobson, and Pasamanick, "The Magnetic Board Rating Technique," pp. 201-6.

²⁸Eckenrode, "Weighing Multiple Criteria," pp. 180-91.

²⁹Ibid.

be difficult to use it as a base because he is rating a far smaller number of factors. The magnetic board rating technique, from which the graphic rating scale emerges, is nineteen by twenty-four inches, inferring a lengthy scale line.³⁰ One of the few studies supplying specific information on the length of scale line is that performed by Ballin and Farnsworth where the use of an eleven inch line was introduced.³¹ In view of the relative paucity of information available on the length of the scale line, it would appear that a fair amount of latitude exists for the selection of length. In this case, in order to facilitate ease of measurement and in order to allow a fair amount of discrimination, a line of twenty centimeters in length was selected.

The key to the study revolves around the determination of factor weights but this is not the only aspect of the project requiring a means of measurement. It is to the means of measuring strife, an important consideration of the first hypothesis, to which we now turn.

Measurement of Strife

The method of measuring strife serves a two-fold purpose. Such a measurement is not only necessary in order

³⁰Rettig, Jacobson, and Pasamanick, "The Magnetic Board Rating Technique," pp. 201-6.

³¹M. Ballin and P. R. Farnsworth, "A Graphic Rating Method for Determining the Scale Value of Statements in measuring Social Attitudes," The Journal of Social Psychology, XIII (1941), 323-27.

to test the first hypothesis but is also required at the outset to enable the selection of a sample of agreements upon which to apply the precepts of the hypothesis. The development of measurement standards, designed for comparison purposes, is probably best tackled by focusing on those aspects of strife which lend themselves to quantification.³² The strike is an obvious manifestation of strife and is a commonly used measurement standard at the macro level.³³ This ultimate expression of industrial unrest was also adopted for purposes of this study.

However, in Alberta, there are also various preliminary stages designed for impasse resolution which must, by statute, precede the call for a strike or lockout. Under the Alberta Labour Act third party intervention is compulsory upon the inability of the negotiators to reach agreement, although recommendations emanating from such third party discourse are not binding. Assuming that such impasses constitute some degree of strife, a proposition already accepted by those using the strike as a measurement of strife, another formal means of measurement, albeit at a lower level, is available in addition to the strike. The degree of strife inherent in negotiations as measured with this linear scale is dependent upon the level of impasse

³²An approach suggested by Shister in "Collective Bargaining," p. 46.

³³See, for example, Ross and Hartman, Changing Patterns of Industrial Conflict, p. 4.

resolution procedure required to effect an agreement. Levels of impasse resolution under the Act include, in order of procedure, the conciliation commissioner, the conciliation board, a vote on the conciliation board decision, the strike vote, the strike call, and finally the strike itself. Settlement can occur at any level or between any of these stages. Since records are kept of all negotiations reaching these various stages, it was possible to isolate a sample of agreements, a requirement of the measuring tool, the negotiation of which included all levels of strife. This sample served as an effective base upon which the precepts of the first hypothesis were tested.

The levels of impasse resolution procedure which can be isolated under the Alberta Labour Act served as the measurement standards of strife for purposes of the study and are best depicted diagrammatically as illustrated in Figure 2 below.

Once a measurement of strife was achieved, the cases upon which the study was conducted were then isolated. The study now focuses on the selection of these cases.

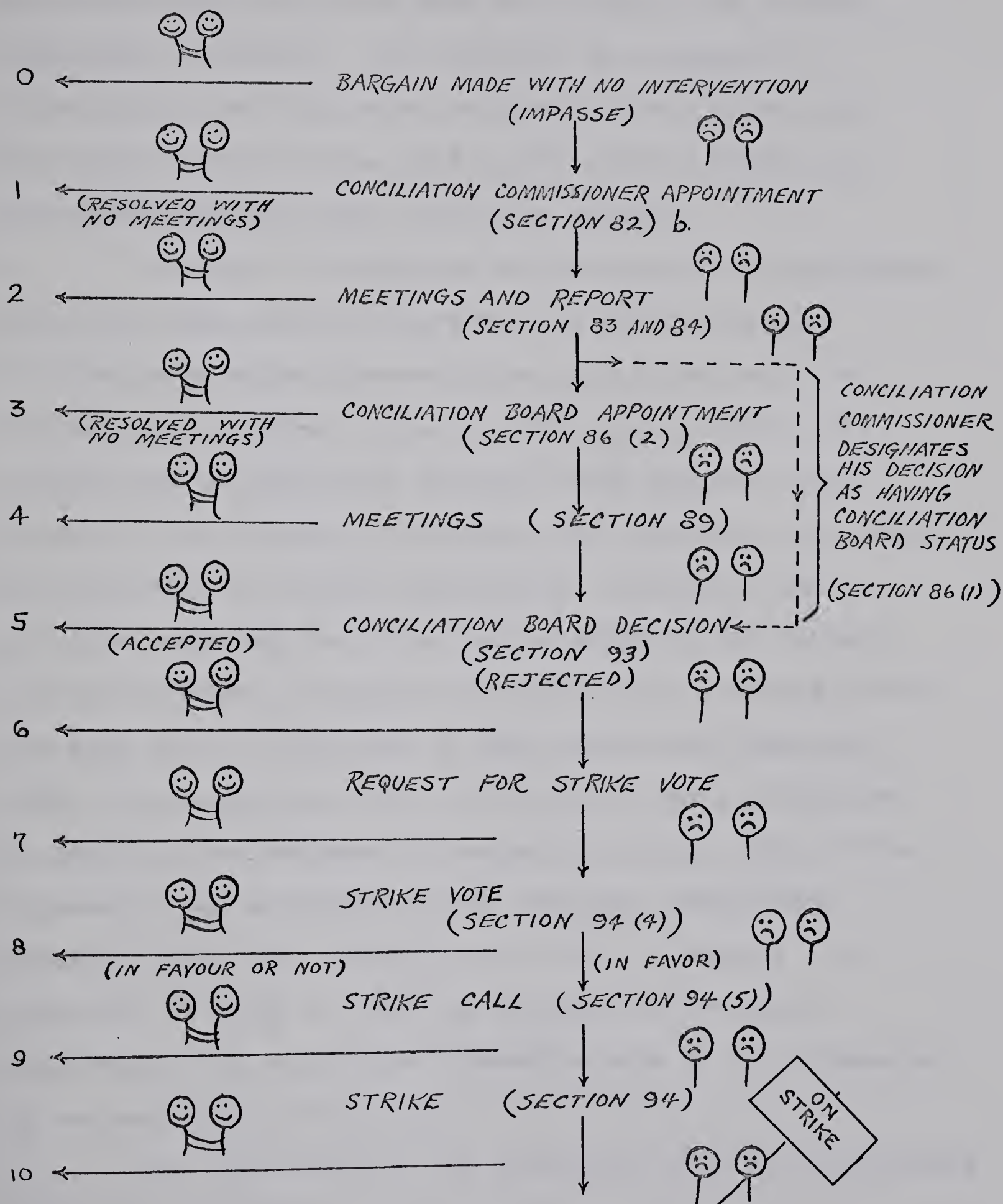
Case Selection

The cases from which the data were generated to test the three hypotheses were drawn from a number of collective agreements and unilateral wage revisions concluded within the Province of Alberta during 1968 and

STRIFE MEASUREMENT

STRIFE MEASUREMENT SCALE
(SETTLEMENT LEVELS) a.

LEVELS OF IMPASSE RESOLVEMENT
PROCEDURE (ALBERTA LABOUR ACT)



a. - THE DIFFERENCES BETWEEN SETTLEMENT LEVELS ARE NOT EQUAL IN DENOTING DEGREES OF STRIFE; HENCE, THE NUMERALS REPRESENT A MEASUREMENT OF ORDINAL LEVEL ONLY.

b. - SECTION REFERS TO THAT SECTION OF THE ALBERTA LABOUR ACT DEALING WITH THE LEVEL OF PROCEDURE TO WHICH IT IS ATTACHED.

1969.³⁴ The selection of the collective agreement sample proceeded from statistics made available by the Alberta Department of Labour. The isolation of a sample of organizations setting rates unilaterally was drawn from the sample base of firms used by the Alberta Bureau of Statistics in their Wage and Salary Survey.

In order to facilitate the testing of the hypotheses, the cases were selected using the following criteria:

(1) they were to be representative of a broad sector of the economy in order to ensure widest applicability of results and to ameliorate problems which may have been unique to one industry or another; (2) similarly, they were to be located in various geographical regions of the province, although the focus was on Edmonton and Calgary; (3) the agreement or wage review had to be concluded within one year prior to the date of data collection (May-June, 1969), preferably as close to the date of data collection as possible for purposes of respondent recall; and (4) the agreements and unilateral cases represent significant groups of employees (largely over fifty in number). In addition, in order to test the precepts of the first hypothesis, the collective agreements were to be accompanied by various levels of strife.

The application of the preceding criteria considerably

³⁴The study is limited to the Province of Alberta in accordance with the measurement of strife adopted for the study which rests on the Alberta Labour Act and, hence is applicable only in Alberta.

narrowed the number of cases upon which the hypotheses could be tested. For example, only four bargaining processes resulted in strike action during the designated period. Similarly, in the case of the unilateral wage setting sample, a number of firms and industries had their wage reviews at headquarters outside of the province which further narrowed the number of firms from which the sample could be selected. In addition, the intensive manner in which data was collected (interviews and questionnaires) limited the number of respondents that could be covered in the time period available for data collection.

The resulting case sample upon which data was planned to be collected consisted of seventeen collective agreements and fifteen unilateral wage reviews. Since some of the parties solicited for data failed to supply the required information, the sample was somewhat smaller than originally hoped for. The final sample consisted of fifteen collective agreements and fourteen unilateral wage reviews. Its composition is best described with the aid of Table 1 and 2 below.

Data Collection

The data collection method adopted for this project consisted primarily of a questionnaire which employed the measuring instrument described earlier³⁵ (the graphic rating scale technique). Although the graphic scale was

³⁵See pp. 95-102 of this chapter.

TABLE 1

COMPOSITION OF BILATERAL CASE SAMPLE^a

| Standard industrial classification ^b | Type of bargaining | Types of employees ^c | Number of agreements | Number of employees in agreement | Date of conclusion of agreement | Level of strife arising ^d |
|---|-------------------------|---------------------------------|----------------------|----------------------------------|---------------------------------|--------------------------------------|
| <u>General contractors</u> | | | | | | |
| Building construction | Joint management | N.O. | 1 | 1500 | Oct. 1968 | 9 |
| Building construction | Joint management | N.O. | 1 | 1000 | Nov. 1968 | 10 |
| Building construction | Joint management | N.O. | 1 | 105 | Nov. 1968 | 6 |
| <u>Manufacturing industries</u> | | | | | | |
| Dairy factory | Joint management | N.O. | 1 | 230 | Sep. 1968 | 6 |
| Bakery | Individual organization | N.O. | 1 | 30 | Oct. 1968 | 0 |
| Tire and tube | Individual organization | N.O. | 1 | 140 | Feb. 1969 | 0 |
| Pulp and paper | Individual organization | N.O. | 1 | 200 | Aug. 1968 | 10 |
| Communications equipment | Individual organization | N.O. | 1 | 110 | Feb. 1969 | 2 |

TABLE 1--Continued

| Standard industrial classification ^b | Type of bargaining | Types of employees ^c | Number of agreements | Number of employees in agreement | Date of conclusion of agreement | Level of strife arising |
|--|-------------------------|---------------------------------|----------------------|----------------------------------|---------------------------------|-------------------------|
| Gypsum products | Individual organization | N.O. | 1 | 60 | Oct. 1968 | 0 |
| Mixed fertilizers | Individual organization | N.O. | 1 | 160 | Oct. 1968 | 9 |
| <u>Transportation, communication and other utilities</u> | | | | | | |
| Electric power | Individual organization | N.O. | 1 | 100 | Mar. 1969 | 2 |
| <u>Trade</u> | | | | | | |
| Machinery and equipment | Individual organization | N.O./O. | 1 | 450 | Sep. 1968 | 7 |
| <u>Community, business and personal service</u> | | | | | | |
| Elementary and secondary schools | Individual organization | N.O. | 1 | 3400 | May 1969 | 8 |

TABLE 1--Continued

| Standard industrial classification ^b | Type of bargaining | Types of employees ^c | Number of agreements | Number of employees in agreement | Date of conclusion of agreement | Level of strife arising |
|---|-------------------------|---------------------------------|----------------------|----------------------------------|---------------------------------|-------------------------|
| <u>Public administration and defense</u> | | | | | | |
| Local administration | Individual organization | O. | 1 | 2000 | Mar. 1969 | 2 |
| Local administration | Individual organization | N.O. | 1 | 1250 | Oct. 1968 | 5 |
| Summaries | | | 15 | 10775 ^e | Median--Oct. 1968 | |
| | | | | | | |

^aGeographical location of organizations--Edmonton, 4; Calgary, 7; Medicine Hat, 1; Hinton, 1; Lethbridge, 2.

^bStandard industrial classification of the Dominion Bureau of Statistics down to the third digit.

^cN.O. = Nonoffice. O. = Office.

^dSee Figure 2 for meaning.

^eAverage size = 718.

TABLE 2

COMPOSITION OF UNILATERAL CASE SAMPLE^a

| Standard industrial classification ^b | Number of reviews | Number of employees in review | Date of wage adjustment | Types of employees ^c |
|---|-------------------|-------------------------------|-------------------------|---------------------------------|
| <u>Mineral fuels</u> | | | | |
| Petroleum and gas | 1 | 960 | Jan.-Apr. 1969 | N.O./O. |
| Petroleum and gas | 1 | 130 | Jan. 1969 | O. |
| <u>Manufacturing industries</u> | | | | |
| Steel pipe and tube | 1 | 35 | Oct. 1969 | O. |
| Fabricated structural metal | 1 | 225 | Jan. 1969 | O. |
| Cement | 1 | 175 | Jan. 1969 | O. |
| <u>Transportation, communication, and other utilities</u> | | | | |
| Pipeline transportation | 1 | 140 | Apr. 1969 | O. |
| <u>Trade</u> | | | | |
| Machinery and equipment | 1 | 75 | Feb. 1969 | N.O. |
| Department stores | 1 | 1425 | June 1969 | N.O./O. |
| Department stores | 1 | 600 | May 1969 | N.O./O. |
| Department stores | 1 | 625 | Apr. 1969 | N.O./O. |
| Motor vehicle dealers | 1 | 100 | Feb. 1969 | N.O. |
| Automotive accessory and parts | 1 | 200 | Apr. 1969 | N.O./O. |

TABLE 2--Continued

| Standard industrial classification ^b | Number of reviews | Number of employees in review | Date of wage adjustment | Types of employees ^c |
|--|-------------------|-------------------------------|-------------------------|---------------------------------|
| <u>Community, business, and personal service</u> | | | | |
| Elementary and secondary schools | 1 | 675 | June 1969 | O. |
| <u>Public administration and defense</u> | | | | |
| Local administration | 1 | 62 | Jan. 1969 | N.O./O. |
| | 14 | 5423 ^d | Median--Feb. 1969 | |
| | | | | |

^aStandard industrial classification of the Dominion Bureau of Statistics down to the third digit.

^bN.O. = Nonoffice. O. = Office.

^cGeographical location of organizations--Edmonton, 9; Calgary, 4; Camrose, 1.

^dAverage size = 388.

the main instrument, supplemental interviews were also conducted.

The determination of the exact source within each case to which the test instrument would be applied was particularly crucial to this study. The person central to the wage decision is the ideal source of information. Accordingly, the chief representative for each party to the collective wage decision-making process and the executive responsible for the determination of wages in unilateral cases comprised the sources upon which the techniques were applied. The chief representative in cases of collective bargaining was generally the chief spokesman for management or the union while the executive responsible for the determination of wages set on a unilateral basis was typically the personnel manager or some other senior executive. It was to these sources that the investigator's efforts were directed. In all but two cases, contact was gained with the desired source. In these cases, both management, the main spokesmen has been detached from headquarters in Eastern Canada and the United States, respectively, and, consequently, they were unavailable for interview purposes. However, this was not a serious limitation because the negotiating team must, according to Section 72 (6) of the Alberta Labour Act, contain a person resident in the province with authority (1) to bargain collectively, (2) to conclude a collective agreement with the certified bargaining agent, and (3) to sign such agreement

on behalf of the company.³⁶ Hence, access to the seat of decision-making could be gained adequately in both cases by contacting the local member of the bargaining team.

Although the graphic rating scale was the chief source of information, each representative was interviewed in order to arouse his interest and cooperation,³⁷ to explain the purpose of the study and the measuring instrument, to outline what was expected of him, and to obtain information relevant to the context within which his decisions were made.³⁸

Following the conduct of the interview, the measuring instrument was left behind with the interviewer, to be filled in and returned at his convenience. The latter approach was necessitated in view of the length of the factor list which required considerable examination. The combination interview rating scale technique proved to be fairly effective in terms of gaining returns.³⁹ Only

³⁶The Alberta Labour Act.

³⁷The quality of ratings is affected greatly by the degree to which the raters are interested in the ratings they make. H. S. Conrad as referred to in Guilford, Psychometric Methods, p. 294.

³⁸It was intended to collect specific contextual information on such items as the number of annual grievances, the amount of strife associated with past negotiations and the general trend of labour relations through the interview but the lack of quantifiable data available precluded other than the gathering of generalities which did not lend themselves to the quantitative analysis required of this study.

³⁹The problem of gaining a high percentage of returns is a serious disadvantage of the self-administered instrument.

three representatives, two management and one union, out of forty-nine did not return the measuring device.

The presentation of the results and its analysis are set forth in Chapter Four. Chapter Five draws forth the conclusions reached in the study.

Kerlinger, Foundations of Behavioral Research, p. 476. This is a major drawback which helped stimulate the use of an interview in conjunction with the self-administered instrument.

CHAPTER IV

ANALYSIS

This chapter is designed to present an analytical review of the data assembled from the graphic rating scale returns. The rating scale technique was developed to measure the relative importance assigned to each factor by each union and, or, management representative, in terms of its influence on each respective wage decision-making process. An analysis of such results serves as the base upon which the precepts of the three hypotheses, detailed in the previous chapter, may be examined.

Each return was first dealt with on an individual basis. The raw factor weights, derived simply by measuring the distance from the base to the point on the scale to which the factor was assigned, were further refined in the following manner. The raw factor weights were totaled for each return. These totals differed numerically because each rater tended to use the scale differently. That is, respondents tended to assign generally higher or lower relative ratings to all factors, thus affecting the totals in a corresponding manner. Further differences in totals occurred because some respondents tended to give weight to relatively smaller numbers of factors, resulting in lower totals. However, although the numerical values of

the total raw weights differed, since the factors being rated were deemed to approximate the sum of absolute influences on wage decisions,¹ the raw weight totals for each return represented a common absolute value. Accordingly, the ratio of each individual factor weight to the total weight of the return from which it was derived represents its portion of the absolute value. This ratio, the refined weight, provides a common base with which the same factors from different returns may be compared.² Therefore, these weights serve as the base upon which the following analysis proceeds.

Hypothesis 1

It was maintained in the first hypothesis that when the management and union representatives participating in the negotiation of a particular wage agreement have common acceptance regarding the identification and relative rating of factors which govern each of their decisions, such agreement is reached with a minimum of strife.

A measurement of the degree of common acceptance of the factors for each agreement was effected through correlating the refined weights assigned each of the factors

¹See p. 27.

²See Appendix B for an example of the development of refined factor weights for a sample return. Unless otherwise stated, all further references to factor weight will imply the refined values.

by each union and management representative. These correlations along with the corresponding degree of strife³ for each agreement are presented in Table 3.

Although only one of three of the agreements negotiated with no strife had a significant positive correlation ($r=.56$, significant at the .01 level for a two-tailed test), none of the agreements resulting in strife had significant positive correlations.⁴ This is a tentative indication that perhaps there was some relationship between common acceptance of the importance of the factors and lack of strife. However, this initial assessment is far from conclusive. A further examination of the relationship between the degree of strife and the degree to which the ratings correlated is required.

Since the strife measurement is an ordinal measure, that is, the numerical distance between each value cannot be assumed to represent the true distance, a nonparametric means of correlating strife measurement with the rating

³The degree of strife is a known variable. In fact, it was one of the criteria used to select the sample of collective agreements. The reader is directed to pp. 101-04 of Chapter III for the rationale behind the strife measurement standards. Page 104 of this chapter contains the specific meaning of each numerical measure of the degree of strife.

⁴The .05 level of significance for a two-tailed test, a common minimum indication of significance as indicated by J. F. Kenney and E. S. Keeping in Mathematics of Statistics (3rd ed.; Princeton, N.J.: D. Van Nostrand Company, Inc., 1954), p. 165, has been adopted as the cutoff level of significance. See Appendix C for the coefficient of correlation and test of significance formulas and calculations.

TABLE 3
RELATIONSHIP BETWEEN STRIFE AND
FACTOR RATING CORRELATIONS

| Collective agreement | Rating correlation (union-management) | Strife measurement (higher number = higher degree of strife) |
|-------------------------|--|---|
| 1 | .3799 | 0 |
| 2 | .3593 | 8 |
| 3 | .2747 | 5 |
| 4 | .3998 | 2 |
| 5 | .3901 | 0 |
| 6 | .3742 | 2 |
| 7 | .2702 | 9 |
| 8 | .5618 | 0 |
| 9 | .3558 | 10 |
| 10 | .1134 | 2 |
| 11 | .0702 | 7 |
| 12 | -.0980 | 9 |
| 13 | .4139 | 6 |
| 14 | .2166 | 6 |
| 15 | .2334 | 10 |

correlations was selected.⁵ The nonparametric coefficient of correlation between strife and the rating correlations was significant ($r_s = -.56$, significant at the .05 level for a two-tailed test).⁶ Thus, it appears that there was a strong relationship between the degree to which the union and management representatives for each agreement had common acceptance of the factors governing their decisions and the degree of strife arising from the negotiations: the higher the concurrence, the lower the degree of strife. This finding lends empirical credence to the precepts of the first hypothesis.

Hypothesis 2

In the case of the second hypothesis it was postulated that the union would have an impact on management decisions, in that management representatives operating within a framework of collective bargaining would place a different emphasis on particular factors and would tend to rank economic factors, especially those devoid of ethical undertones, lower than would those representatives operating within a system of unilateral wage determination. In order to test the appropriateness of this hypothesis the

⁵According to Sidney Siegel in Nonparametric Statistics for the Behavioral Sciences (New York: McGraw-Hill Book Company, Inc., 1956), p. 30, only nonparametric statistical tests are appropriate under conditions of ordinal measurement.

⁶See Appendix D for the detailed calculation of the Spearman rank coefficient of correlation and the test of significance.

data was ordered in a way that the precepts of the hypothesis could be examined empirically.

The refined weights were aggregated for each factor for all bilateral management representatives as were those for all unilateral management representatives. A simple averaging process yielded composite factor weights for each group. Columns 1 and 4 of Table 4 present the end product of this process.

The relationship between the management groups for each composite factor weight, or lack of relationship as proposed by the hypothesis, was checked with the aid of the product moment coefficient of correlation. This correlation was surprisingly high ($r=.60$, significant at the .01 level for a two-tailed test). The relationship between the economic factors, including those with ethical undertones, was similarly checked and found to be nearly as significant ($r=.82$, significant at the .05 level for a two-tailed test).⁷ In other words, the factors have tended to receive the same relative consideration by both groups. Hence, the precepts of the second hypothesis appear to be inconsistent with the empirical evidence. That is,

⁷See Appendix C for the coefficient of correlation and test of significance formulas. Insert new values for the calculation of the coefficient of correlation: x =unilateral management composite weights for each factor, y =bilateral management composite weights for each factor, and $N = 21$; and for the calculation of the level of significance $df = N - 2$ or 19. When $t \geq 2.093$, r is significant at or above the .05 level for the two-tailed test.

TABLE 4

COMPOSITE FACTOR WEIGHTS

| Factors | Unilateral management | | | Bilateral management | | | Union | | | Combined union--bilateral management | | | Overall combined union--bilateral and unilateral management | | |
|--|-----------------------|--------------------|------|----------------------|--------------------|------|-------------------|--------------------|------|--------------------------------------|--------------------|------|---|--------------------|------|
| | Composite weights | Cumulative weights | Rank | Composite weights | Cumulative weights | Rank | Composite weights | Cumulative weights | Rank | Composite weights | Cumulative weights | Rank | Composite weights | Cumulative weights | Rank |
| <u>Economic</u> | | | | | | | | | | | | | | | |
| A. Ability to pay | 62 | 62 | 8 | 67 | 67 | 2 | 55 | 55 | 9 | 61 | 61 | 6 | 61.5 | 61.5 | 6 |
| B. Productivity changes | 35 | 97 | 11 | 34 | 101 | 17 | 44 | 99 | 13 | 39 | 100 | 15 | 37 | 98.5 | 11 |
| C. Labour market conditions | 111 | 208 | 1 | 73 | 174 | 1 | 60 | 159 | 6 | 66 | 166 | 1 | 88.5 | 187 | 1 |
| D. Wage guidelines | 31 | 239 | 12 | 35 | 209 | 16 | 22 | 181 | 20 | 29 | 195 | 18 | 30 | 217 | 18 |
| E. Cost of living changes | 86 | 325 | 4 | 63 | 272 | 4 | 69 | 250 | 2 | 65 | 260 | 2 | 75.5 | 292.5 | 3 |
| F. Minimum wage legislation | 2 | 327 | 21 | 4 | 276 | 22 | 4 | 254 | 22 | 4 | 264 | 22 | 3 | 295.5 | 22 |
| G. Other benefits gained at the expense of wages | 18 | 345 | 18 | 54 | 330 | 10 | 42 | 296 | 14 | 48 | 312 | 11 | 33 | 328.5 | 15.5 |
| H. Living wage | 82 | 427 | 5 | 58 | 388 | 6 | 64 | 360 | 4 | 61 | 373 | 5 | 71.5 | 400 | 5 |

TABLE 4--Continued

| Factors | Unilateral management | | | Bilateral management | | | Union | | | Combined union--bilateral management | | | Overall combined union--bilateral and unilateral management | | |
|--|-----------------------|--------------------|------|----------------------|--------------------|------|-------------------|--------------------|------|--------------------------------------|--------------------|------|---|--------------------|------|
| | Composite weights | Cumulative weights | Rank | Composite weights | Cumulative weights | Rank | Composite weights | Cumulative weights | Rank | Composite weights | Cumulative weights | Rank | Composite weights | Cumulative weights | Rank |
| I. Ability to strike or lockout or to resist a strike or lockout | .. ^a | 427 | .. | 60 | 448 | 5 | 61 | 421 | 5 | 61 | 434 | 7 | 30.5 | 430.5 | 17 |
| <u>Noneconomic</u> | | | | | | | | | | | | | | | |
| J. Management membership pressure | 24 | 24 | 14 | 32 | 32 | 18 | 35 | 35 | 16 | 34 | 34 | 17 | 29 | 29 | 19 |
| K. Employee membership pressure | 24 | 48 | 13 | 55 | 87 | 9 | 73 | 108 | 1 | 64 | 98 | 3 | 44 | 73 | 9 |
| L. Employee leadership influence | 22 | 70 | 16 | 42 | 129 | 14 | 47 | 155 | 11 | 44 | 142 | 13 | 33 | 106 | 15.5 |
| M. Management leadership influence | 65 | 135 | 7 | 45 | 174 | 13 | 39 | 194 | 15 | 42 | 184 | 14 | 53.5 | 159.5 | 8 |
| N. Employee bargaining skill or strategy | 7 | 142 | 19 | 53 | 227 | 11 | 66 | 260 | 3 | 60 | 244 | 8 | 33.5 | 193 | 14 |

TABLE 4--Continued

| Factors | Unilateral management | | | Bilateral management | | | Union | | | Combined union--bilateral management | | | Overall combined union--bilateral and unilateral management | | |
|--|-----------------------|--------------------|------|----------------------|--------------------|------|-------------------|--------------------|------|--------------------------------------|--------------------|------|---|--------------------|------|
| | Composite weights | Cumulative weights | Rank | Composite weights | Cumulative weights | Rank | Composite weights | Cumulative weights | Rank | Composite weights | Cumulative weights | Rank | Composite weights | Cumulative weights | Rank |
| O. Management bargaining skill or strategy | 18 | 160 | 17 | 55 | 282 | 8 | 58 | 318 | 8 | 57 | 301 | 9 | 37.5 | 230.5 | 13 |
| P. Employee-management relations | 105 | 265 | 2 | 64 | 346 | 3 | 59 | 377 | 7 | 61 | 362 | 4 | 83 | 313.5 | 2 |
| Q. External social pressure (management) | 61 | 326 | 9 | 24 | 370 | 20 | 19 | 396 | 21 | 22 | 384 | 21 | 41.5 | 355 | 10 |
| R. External social pressure (employees) | 42 | 368 | 10 | 35 | 405 | 15 | 34 | 430 | 17 | 35 | 419 | 16 | 38.5 | 393.5 | 12 |
| S. Government influence | 7 | 375 | 20 | 20 | 425 | 21 | 27 | 457 | 18 | 23 | 442 | 20 | 15 | 408.5 | 21 |
| T. Public opinion | 23 | 398 | 15 | 24 | 449 | 19 | 23 | 480 | 19 | 24 | 466 | 19 | 23.5 | 432 | 20 |
| U. Intrinsic job worth | 100 | 498 | 3 | 46 | 495 | 12 | 45 | 525 | 12 | 46 | 512 | 12 | 73 | 505 | 4 |

TABLE 4--Continued

| Factors | Unilateral management | | | Bilateral management | | | Union | | | Combined union--bilateral management | | | Overall combined union--bilateral and unilateral management | | |
|------------------|-----------------------|--------------------|------|----------------------|--------------------|------|-------------------|--------------------|------|--------------------------------------|--------------------|------|---|--------------------|------|
| | Composite weights | Cumulative weights | Rank | Composite weights | Cumulative weights | Rank | Composite weights | Cumulative weights | Rank | Composite weights | Cumulative weights | Rank | Composite weights | Cumulative weights | Rank |
| V. Worker morale | 75 | 573 | 6 | 57 | 552 | 7 | 54 | 579 | 10 | 56 | 568 | 10 | 65.5 | 570.5 | 7 |
| Total Weight | | 1000 | | | 1000 | | | 1000 | | | 1002 | | | 1001 | |

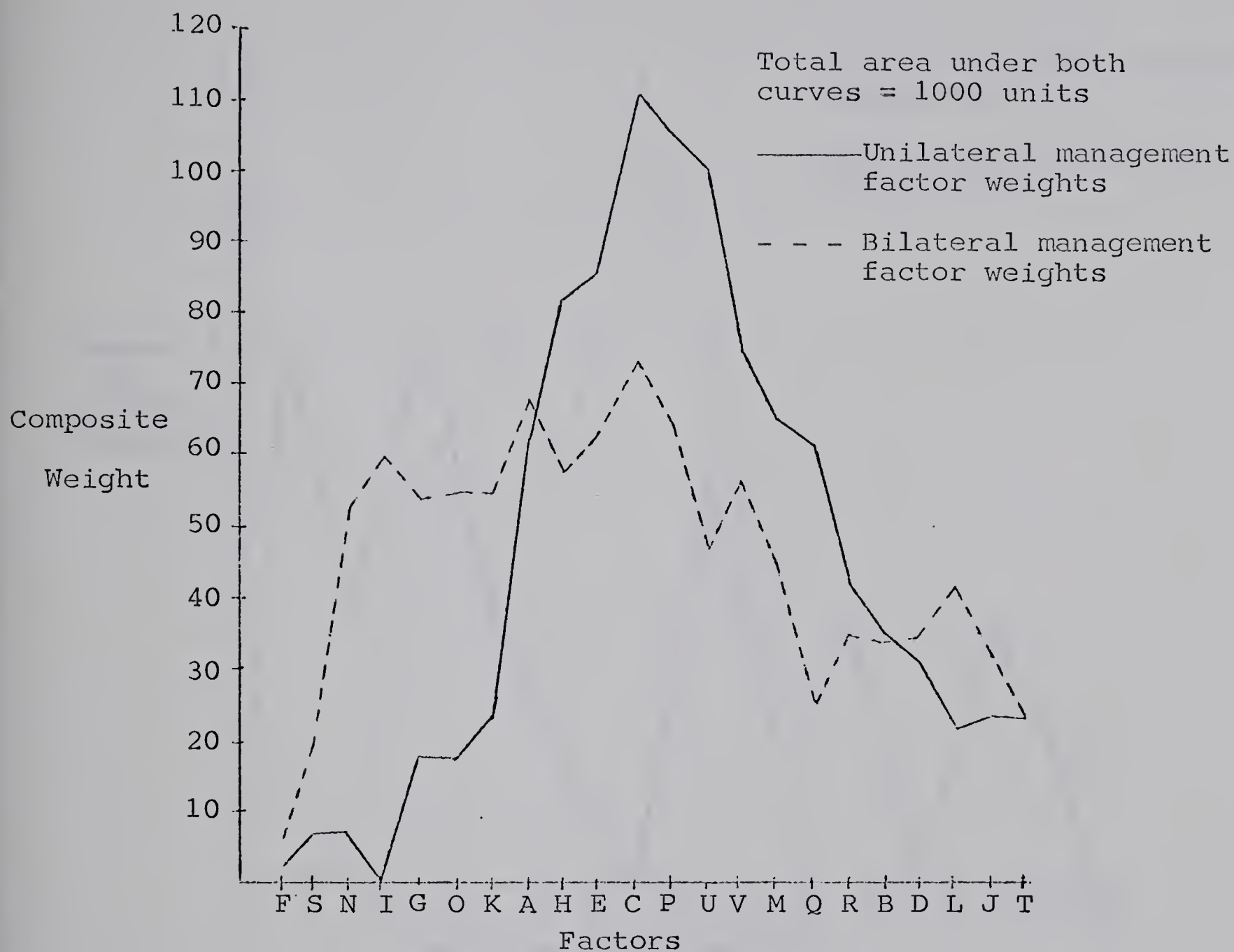
^aThis factor is not applicable under unilateral conditions.

the union does not appear to have made an impact on the factors used in management's decision process. However, before drawing any final conclusions at this stage, the data was subjected to a number of other analytical techniques.

A graphic illustration (Figure 3) of the composite weights of each factor for each management group was produced in order to further examine the relationship between the relative size of the weights for each factor. The graph indicates that, although the composite factor weights rise and fall correspondingly as specified by the highly significant positive coefficient of correlation, there appears to be a measurable difference in the relative size of weights assigned to each factor. Under unilateral conditions it is apparent that fewer factors are receiving greater weights, while under bilateral conditions a more even spread in factor weights is evident. This comparison appears to provide some evidence of a concrete difference between the two management composite weights.

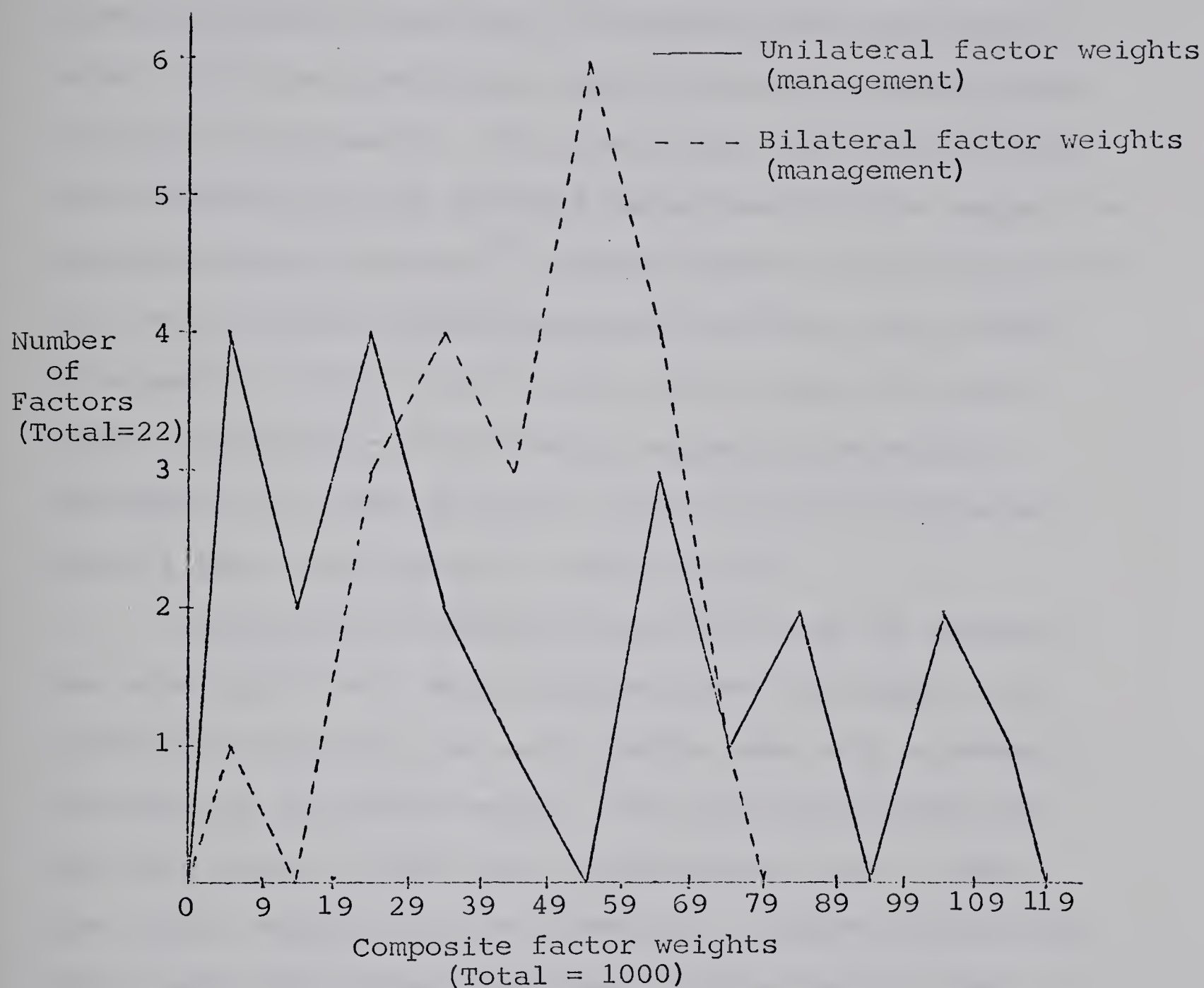
Although the graphic presentation of Figure 3 is easily comprehended and appears to illustrate a substantive difference between the composite weights, a more rigorous statistical treatment of the data is required before firm conclusions can be reached. The frequency polygon of Figure 4 reflects an ordering of the data that lends itself to a more detailed statistical analysis.

Fig. 3.--Relative composite weights per factor



*See Table 4 for corresponding factor titles.

Fig. 4.--Distribution of factor weights



A casual glance at Figure 4 indicates a greater dispersion in the composite factor weights of management under unilateral conditions. In other words, the factors under unilateral conditions tend to receive a wider spread in weight assignments. This observation was substantiated when estimates of the standard deviations for the respective populations were derived.⁸ The estimated standard deviation for the bilateral weight population is 16.61 units, while it expands to 35.13 units in the case of the unilateral weight population. This finding supports the earlier statement that under bilateral conditions the factors are given a more even degree of consideration.

A measure of asymetry about the mean, or skewness, was also conducted. While neither curve was found to be perfectly asymmetrical as would be the case with a normal distribution of factor weights, the unilateral curve was far more skewed (.498) than the bilateral curve (-.360). The latter measure of skew identifies a longer tail to the left, while the former describes a longer tail to the right. The longer skew to the right indicates that a number of factors received larger weights in relation to the bulk of weight assignments under unilateral conditions than was the case under bilateral conditions. In fact, to a lesser degree, just the opposite was the relationship under

⁸See Appendix E for the formulas used to calculate the estimated standard deviation, skewness, and kurtosis for the population of composite unilateral and bilateral management weights.

bilateral conditions. This finding continues to substantiate the fact that a more well-balanced distribution of factor weights existed under bilateral conditions.

A final statistical technique was applied to the composite weights, that of kurtosis measurement. While some authors claim that such a measurement reflects the shape of the peak of the distribution, Kenney and Keeping argue that it has less to do with the shape of the hump than with the length (and height) of the tails.⁹ This latter interpretation is the one adopted for purposes of this study. Hence, the estimated kurtosis of -1.068 for the unilateral population curve is seen to represent higher and flatter tails for that population than those of the bilateral population, as reflected in the kurtosis measurement of $-.071$. These higher and flatter tails denote a larger number of higher and lower weight assignments under unilateral conditions and once again support the contention that the factors are given a more well-balanced consideration under bilateral conditions.

Therefore, although the positive and significant correlation found between the unilateral and bilateral management composite weightings ostensibly pointed to a

⁹Henry E. Garrett in Elementary Statistics (2nd ed.; New York: David McKay Company, Inc., 1962), p. 87, is an example of an author who feels that kurtosis is a measure of the peak of the distribution. Kenney and Keeping, Mathematics of Statistics, pp. 102-3 are among those who subscribe to the view that kurtosis is related to the length (and height) of the tails of the distribution rather than the peak.

lack of union impact, it has been shown that the management decision has been affected by the union but in a somewhat different manner than was expected. The union has apparently tended to cause management to give a more uniform consideration to all factors than was the case where the union was not involved. Thus, it seems that the management decision becomes one of greater complexity under union influence because more factors must be juggled simultaneously in arriving at the wage decision. Although, in total, the factors tended to receive the same relative weightings, those weighted highest must be tempered to a larger degree by the next most important factors under bilateral conditions. Management under unilateral conditions can arrive at a decision by simply relying heavily on fewer, more highly weighted factors.

Thus, the impact of the union on management's wage decisions has been isolated and found to be exhibited in a different manner than was hypothesized. Although the underlying base of the hypothesis was substantiated, the manner in which the impact of the union was thought to be reflected in the management decision-making process was not. The factors received a different dispersion of weights rather than a different ordering of weights as was hypothesized.

Hypothesis 3

The third hypothesis proposed that economic

factors , especially those devoid of ethical bases, do not serve as the primary criteria for management or the union in the determination of wage levels.

The testing of this hypothesis required several different groupings of the rating data. Firstly, refined weights were aggregated and averaged for each factor for all union representatives in the same manner that they were for all bilateral and unilateral management representatives, respectively.¹⁰ These composite union weights were then combined with the bilateral composite management weights, under the assumption that both parties had a fairly equal influence on the wage decision, in order to gain a perspective of the influence of the various factors on the bilateral wage decision in general. The combined bilateral composite weights were then juxtaposed with the unilateral management composite weights for a relative measure of the influence of the factors on each decision-making process. Finally, the combined bilateral composite weights were united with the unilateral composite weights in order to gauge the relative influence of the various factors, irrespective of bilateral or unilateral connotations. Table 4 represents the final product of the several manipulations of the data and serves as a base for the examination of the appropriateness of the hypothesis.

As evidenced in Table 4, economic and noneconomic

¹⁰This process is described on p. 120.

factors appeared to exert a relatively comparable influence on an overall combined basis. Although labour market conditions, an economic influence, ranked first, the first eight factors were divided as to origin. The four economic influences, also including cost of living changes, living wage, and ability to pay, represented 29.7 per cent of the total weight, while the four non-economic factors, employee-management relations, intrinsic job worth, worker morale, and management leadership influence, received 27.5 per cent of the total weight. However, only two of the first four economic factors were purely economic,¹¹ labour market conditions and ability to pay, while the other two contained subjective values or ethical bases.

Further analysis of the overall combined weights assigned the factors continued to reflect a fairly even balance of economic vs. noneconomic influences, although, in total, the noneconomic factors received a larger portion of the weight. Of the total weight 57 per cent was assigned to noneconomic factors, while 43 per cent went to economic factors. Of the 43 per cent accruing to economic factors, 21.7 per cent represented the "pure" or economic influences, including the ability to pay, productivity

¹¹The economic factors with marginalist bases are deemed to be "pure" economic factors while the remaining economic factors stem largely from ethical bases. The bases of each of the factors were described in some detail in Chapter II.

changes, labour market conditions, and wage guide lines, which stem from marginalist principles. The remaining 21.4 per cent reflected the influence of economic factors with underlying subjective values or ethical bases. The broad comparative statistics emerging from this analysis of the overall combined weights were then contrasted with those emanating from an analysis of the individual group composite weights.

It was anticipated that the unilateral composite weights would reflect greater emphasis on economic factors than would those embodied by the combined bilateral composite weights. Such was not the case. The same approximate breakdown (57 per cent--43 per cent) in noneconomic/economic factor weights was evidenced in both combined bilateral and unilateral wage decisions. However, under unilateral conditions a slightly higher weight was assigned to marginalist economic factors than under bilateral conditions (23 per cent vs. 19.5 per cent). Even the individual union and bilateral management composite weights reflected a comparable economic/noneconomic factor balance with the union assigning slightly greater influence (2.7 per cent) to the noneconomic factors than bilateral management did. Hence, the economic/noneconomic weight distribution remained fairly stable from group to group, with a slight edge accruing to noneconomic influences. The marginalist economic factors were definitely outweighed in all cases by the combined non-marginalist economic and

noneconomic factor weights. Before the relevance of these findings is explicitly related to the hypothesis, the weightings attached to two key economic factors warrant special comment.

The low relative weight accruing to productivity changes is particularly revealing, for it is this factor that many economists feel is the most rational base for wage decisions.¹² Decisions geared to this factor should be in harmony with the health of the economy. The fact that it ranked as low as it did (eleventh overall) serves to further illustrate the relatively low impact of the factors which measure real changes in economic growth--the marginalist economic factors.

The fact that a marginalist economic factor, labour market conditions, ranked first overall does not compensate for the relatively low total weight assigned to marginalist factors. This factor tends to be a pure economic factor only when competition is effective.¹³ It has ethical connotations under less than competitive conditions. Not all organizations in the case sample were operating under effective competition. Hence, the influence of the factor

¹²Although this factor is regarded as the key to rational wage level determination as discussed on p. 46 of Chapter II, the fact that it ranked as low as it did is probably largely a reflection of the difficulty in measuring such changes. However, the economic rationality of the factor has been evidenced in practice since it usually serves as the criteria for wage guidelines.

¹³See p. 48 of Chapter II.

as a marginalist measurement must be tempered and its ethical undertones cannot be disregarded.

In summary, economic considerations did not influence union or management wage decisions to any larger a degree than did those termed as noneconomic. Furthermore, when economic factors without marginalist bases were grouped with the noneconomic influences, they far outweighed the influences of the marginal economic factors. Therefore, the hypothesis that economic factors, especially those devoid of ethical bases, do not serve as the primary criteria for management or the union in the determination of wage levels is consistent with the empirical findings of this study.

CONCLUSION

The intent of this concluding chapter is to first summarize the results of the study and draw from them implications which are relevant to both the practice and theory of wage determination. The degree to which meaningful implications can be derived extends in part from knowledge of the limitations which underlie the results of the study. Therefore, such limitations become the second aspect with which the chapter is concerned. Finally, since knowledge of such limitations forms a natural base for ensuing projects, the discussion on limitations also includes recommendations for future research.

Summary and Implications of Results

The primary purpose of the paper, to examine the relationship between the wage decision-making process and its contribution to industrial strife, was achieved and yielded results consistent with the relationship posited by the first hypothesis. That is, a strong relationship was found between the degree to which the union and management representatives for each agreement had common acceptance regarding the identification and relative rating of the factors which govern each of their decisions and the degree of strife arising from negotiations. The interdependence established was an inverse one. The higher

the concurrence as to the acceptance of the factors, the lower the degree of strife.

The finding was not unheralded. It is consistent with Walton and McKersie's suggested method of reducing strife centering on developing common bases for the interaction between parties.¹ The study fortifies Walton and McKersie's recommendations and serves as a substantive base from which positive means of reducing strife may extend.

For example, such information fed back to the parties to collective bargaining could result in greater attention focused on the bases of decisions prior to commencing discussions associated with data related to these bases. In other words, efforts could be made to establish a common base of discussion.

Similarly, knowledge of the relationship between strife and the factors governing wage decisions could influence the strategy adopted by third parties in attempting to resolve impasses. They would concentrate on arriving at agreement between the parties as to a common base of discussion prior to attempting to forge the final decision.

Finally, the rating scale could be used as a predictor of possible strife. Such an application does not lend itself to general usage but in the case of suspected

¹Walton and McKersie, A Behavioral Theory of Labor Negotiations, p. 230.

impasses with large impact it could be a useful indicator. Knowledge of differences in emphasis by each party accorded the factors could lead to earlier intervention with a strategy based upon arriving at a common base of discussion. Therefore, the results of the study could contribute both to the resolvment of impasses and the reduction in the propensity to arrive at such impasses.

Research aimed at reaching the second objective of the paper, to determine the impact, if any, of the union on management's wage decision process led to results which, although consistent with the basis of the second hypothesis, were largely unforeseen at the outset. Management representatives operating within a framework of collective bargaining did place a different emphasis on the factors influencing their wage decisions than did management under unilateral conditions but not in terms of the rank accorded each factor. Instead, the factors received a different dispersion of weights. A greater balance and wider distribution of weights was evident in the combined weightings of management under bilateral conditions.

This finding lends support to those economists who argue that unions do exert an influence on the wage decision.² Further, the results of the study indicated that

²An example of such a point of view is given by Ross in Trade Union Wage Policy, pp. 4-6 where he states that organized economic society is not a servant of impersonal market forces and that wage decisions are determined by conscious human decision. The reader is also directed to

using the precepts of the institutional theorists, that is that unions do influence wage decisions, as a base for research on wage decision-making is a sound practice. However, such a conclusion can only be related to short run wage determination within a relatively buoyant economy. These constraints will be discussed in the following section as will the recommendations they imply for future research.

The third and final purpose of the paper, to determine the degree to which the wage decision process appears to take into account the state of the economy, was also attained and the results were found to be in accord with the precepts of the third hypothesis. Economic factors, especially those devoid of ethical bases, did not serve as the primary criteria for management or the union in the determination of wage levels. Since economic factors devoid of ethical bases were deemed to largely reflect those changes in the organization and the economy upon which decisions congruent with the state of the economy could be made,³ wage decisions made by the representatives in the case sample appeared to be made largely on factors other than those in step with the health of the economy.

Once again, the study supports those theorists who recognize the influence of other than economic factors in

the works of those economists referred to earlier in footnote 4 of the first chapter as well as footnotes 10 and 11 of the third chapter.

³See p. 32 of the second chapter.

bilateral wage decision-making. However, economic factors still played a very large role. Therefore, the merge of economic and noneconomic criteria espoused by institutional theorists gains further support. In addition, the study established that the primary influences on unilateral wage decisions are similarly not necessarily economic in nature. This finding indicates that it is not necessarily union influence which has downgraded the often espoused pre-eminence that "pure" economic criteria would be accorded if it were not for the union.

These results have implications with respect to practices developed to improve the soundness of wage determination. The past emphasis has centered on developing sound quantification of productivity measures and wage guidelines. However, it appears that before such information can produce results, a better understanding of the relationship of the factors to the economy by the parties to negotiations is required. No matter how concisely quantified a factor is, if the parties do not give it sufficient weight in the wage decision-making process, its impact will be lost. This is not to say that such improvement in measurement is not necessary. Improved measurement is, in fact, crucial to the improvement of the process, since such improvements may lead to greater weight being accorded those factors in proportion to greater confidence in their usefulness. However, the intention is to point out that a two-pronged approach is required. The education of the

parties as to the bases of sound wage decisions, a recommendation already forwarded by Smith in his study on incomes policy,⁴ in concert with improvements in the quality of data could lead to greater emphasis accorded those factors upon which decisions congruent with the state of the economy can be made.

An advantage of this approach lies in its flexibility. Smith stated that, "It is useful to have greater knowledge of the economic criteria or guides that should play a role in public and private decisions, but, without the inflexibilities of official criteria which the government may feel compelled to defend even though they may not be suitable in some specific cases."⁵ Instead of focusing on specific guidelines, the improvement of factor data backed with an increased awareness of the factors upon which wage decisions can be most justifiably based, could improve the soundness of the wage decision-making process.

This approach leaves the wage decision in the hands of the parties to collective bargaining but still relates the goals of the economy to each individual decision maker. Immediate improvements resulting from such a method should not be expected. Changes take time and, in any event, during a period of favourable economic conditions such as we are in now, the influence of noneconomic

⁴Smith, Incomes Policies, p. 206.

⁵Ibid.

factors probably has far more leeway to prevail regardless of the importance attached to economic influences.⁶ Hence, improvements may be difficult to discern during such a period.

Evidence has not been garnered on the impact of the factors on the wage decision-making process over the long run. Economic factors may predominate,⁷ in which case the results of this study are not as significant as they would be if such results were found regardless of the state of the economy. Nevertheless, it is felt that policies can be based to some degree on short run findings because, after all, the long run is composed of short run snapshots. Steps taken to correct short run oscillations could tend to smooth out the long run picture.

However, long run studies are not without considerable merit. Consequently, recommendations for future research must, at least in part, relate to long run implications. Such recommendations emanate from this study and form part of the core of the following section.

Limitations and Recommendations for Future Research

Although the study establishes significant results

⁶For example, Shultz in Pressures on Wage Decisions, p. 137, found political pressures to predominate union wage policies only when economic conditions were favourable.

⁷A suggestion that is in accord with those economists who favour the marginal productivity theory as predictive of wage determination.

in relation to all three hypotheses, the general application of such results must be constrained in proportion to the limiting features of the study. Furthermore, knowledge of such limitations forms the core of future research aimed at broader application. Therefore, the following discussion is aimed largely at outlining the limitations of the present study with the objective of providing recommendations for future research.

The fact that the study was based on the Alberta labour relations scene only, one which does not necessarily reflect the problems of other regions or the nation as a whole, is a limiting feature. Alberta's brand of labour legislation and general political climate may have fostered different problems and approaches to the resolvment of these problems than those existing elsewhere. Secondly, although great effort was directed at developing a homogeneous case sample of organizations, it does not follow that the sample truly reflected the homogeneity of organizations in Canada. Thirdly, the study was conducted at a time of relative economic buoyancy within the nation and in particular Alberta.⁸ Results may have differed immensely had the study been carried out in a more depressed region or at a time when the growth of the economy was ebbing.

⁸The latter two limiting features of the study have been demonstrated to be important by George Seltzer in "Pattern Bargaining and the United Steel Workers," pp. 319-31, where he found political pressures to vary in importance over time and between different product and labour markets.

These constraints suggest future research. Studies could well center on different areas of the nation or even stem from a broad national base. Only then could wide applicability of results be ensured. For example, the heavy influence of the oil industry upon the Alberta economy is not representative of the influence of the broad manufacturing bases upon some of the Eastern Canadian provinces. A national sample could ameliorate this deficiency.

With respect to the state of the economic climate, studies conducted over the long run could negate the influence of buoyant or depressed economic conditions. This problem could also be partially solved if a similar study were conducted in a region with a more depressed economy and the results related to those of this study. The relevance of the latter recommendation was referred to earlier but requires further emphasis. That is, perhaps under a less favourable economic climate, economic factors would be given more emphasis than they were in this study.

The preceding recommendations stem from the base upon which the study was conducted while the following proposals emanate from the manner in which the study was conducted. They focus on problems and limitations associated with the factor base and research plan.

The core of the entire research plan, the factor base, is by no means beyond improvement. Problems of ascertaining the relative impact of such factors can stem

from gaps in the inclusiveness of the list and more probably from overlapping factors. A large portion of the time spent in developing this paper focused on the factor base. Although great care was taken to ensure inclusiveness and mutual exclusiveness, particularly through an extensive review of relevant literature and a check on applicability in the field, the relative paucity of the development of such information to date speaks for the problems associated with its development.

The measurement of strife also evoked problems. The assumption that each level of impasse procedure under the Alberta Labour Act reflected a different degree of strife has not been unequivocally proven. Research geared to isolating other quantitative measures of strife could do much to improve this aspect of the study. For example, future investigation might center on the relationship between strife and either the number of annual grievances or the past history of negotiations. This is especially important when, as some conciliation officers feel, the impasse resolution legislation in Alberta is beginning to become simply a part of the wage decision-making process rather than a method of resolving impasses arising during the process.

The timing of data collection could have also constituted a problem. In some cases upwards of six or seven months existed between negotiations and data collection. Problems of recall could have occurred but

for the fact that most of the agreements were earned through intense negotiation, the impressions of which appeared to be indelibly etched on the minds of the participants. Nevertheless, ratings of the factors immediately following negotiations may prove more valid. Furthermore, with respect to the implications associated with the first hypothesis, outlined in the previous section, the use of the rating scale as a predictive instrument could be examined by collecting data immediately prior to negotiations and then comparing it to the degree of strife ensuing.

The recommended research could well extend the applicability of the results of the study. This is not to say that the preceding limitations preclude the usefulness of the study. They simply serve as terms of reference to be borne in mind when examining the implications of the results.

Although the intent of the study was to draw specific conclusions with respect to proposed relationships, perhaps its greatest usefulness is as a step in the direction of the investigation of wage determination from a broad perspective. If it has but furthered the future application of concepts derived from institutional theory, it has been a most useful exercise.

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APPENDIX A

FACTORS INFLUENCING WAGE DECISIONS (LEVEL AND STRUCTURE)

A. Introduction

The following list of factors and definitions has been developed in an attempt to isolate and define the entire spectrum of influences on wage (salary) decisions. It is requested that you rate each factor (see attached rating sheet and rough working copy) on the basis of its relative impact on decisions made by yourself in effecting the wage review of

Please read each definition carefully prior to rating because many of the factor titles convey different meanings to different people and it is the essence of each definition that is to be rated.

B. Factors

ABILITY TO PAY^{*}

This factor is central to the economic viability of the firm. It consists essentially of the consideration of overall costs, including present and projected costs of labour, in relation to current profit levels and anticipated revenues. Analysis of the factor is often performed in terms of relating marginal costs to marginal revenues or average costs to average revenues. Such analysis includes a review of the ability to pass costs on, generally in the form of higher prices, in addition to the capability of absorbing them. Also requiring continuing analysis is the degree to which labour should share in income in relation to contribution. The term encompasses the examination of the percentage of labour to total cost, the ability to substitute other factors of production, the effect pay rate increases could have on the pay rates assigned to other groups of employees in terms of costs, and an evaluation of present and future economic conditions in general. Implicit is the effect changes in cost may have on the employment level of the firm; for example, extensive lay-offs may be necessary in the event that a firm cannot cope with increased labour costs.

THE UNITED STATES OF AMERICA

DEPARTMENT OF THE INTERIOR

BUREAU OF LAND MANAGEMENT

WASHINGTON, D. C. 20250

TO: DIRECTOR, BUREAU OF LAND MANAGEMENT

FROM: SAC, [illegible]

SUBJECT: [illegible]

REFERENCE: [illegible]

DATE: [illegible]

RE: [illegible]

1. [illegible]

2. [illegible]

3. [illegible]

4. [illegible]

5. [illegible]

6. [illegible]

7. [illegible]

8. [illegible]

9. [illegible]

10. [illegible]

11. [illegible]

12. [illegible]

13. [illegible]

14. [illegible]

15. [illegible]

16. [illegible]

17. [illegible]

18. [illegible]

19. [illegible]

20. [illegible]

EMPLOYEE MEMBERSHIP PRESSURE

The degree of pressure exerted by the overall employee membership for increased wages. Such pressure can be operationalized through the election of employee representatives. Particular occupational groupings may also impose more specific demands with respect to wage structure (internal wage level relationships), form of increase (flat dollar amount vs. percentage increases), or overall level of increase.

PRODUCTIVITY CHANGES*

A part of cost analysis related to ability to pay but with broader application. It includes not only the internal influence of changes in production but also embodies the influence of national productivity information. Changes in productivity may result from a number of elements, including technological advances, more skillful management, or increases in worker efficiency.

MANAGEMENT MEMBERSHIP PRESSURE

The influence of general management officials or specific functional groups on wage level and structure decisions, either upward or downward. Management may also receive pressure for higher increases from management groups who feel that the magnitude of increases in pay rates at lower levels will be reflected in management salary levels.

PUBLIC OPINION

The effect of public influence.

For example, either management or the employee representative may be seeking a prestigious position within the community.

EMPLOYEE LEADERSHIP INFLUENCE

The ability of the individual fulfilling the leadership role for the employee group to seek or instigate objectives not resulting from any influence encompassed by the remainder of factors. For example, he may introduce demands based on personal goals such as prestige and instill the desire for a higher settlement than would have otherwise resulted.

COST OF LIVING CHANGES*

Related very closely to general economic conditions but of a more specific nature. The basic measure of such changes emanates in the form of city and national consumer price index monthly calculations, published by the Federal Bureau of Statistics.

LABOUR MARKET CONDITIONS*

The comparison of the firm's pay rates to those existing in the labour market, regardless of the particular geographic or industrial markets chosen. Includes the extent to which recruitment (quality and quantity) and retention have been attained during the past period and the degree to which they are anticipated as problems in the future.

MANAGEMENT LEADERSHIP INFLUENCE

Essentially comparable to employee leadership influence. For example, a manager's personal philosophy with respect to the rights of labour may influence decisions related to wage considerations.

ABILITY TO STRIKE OR LOCKOUT OR RESIST A STRIKE OR LOCKOUT

Management considerations of the strike are related to the possession of strike insurance, the financial assistance of the firms in the industry, size of inventory, the demand for the product at the time of the possible strike, and estimates of the union's ability to strike.

The union, considering strike action, must be concerned with the ability to prevent others from performing the work while its members are on strike, the size of a strike fund, the assistance of other unions in the form of sympathy strikes or financial assistance (e.g. international affiliations), and estimates of management's ability to withstand a strike.

The lockout is analagous to the strike factor with considerations essentially reversed as a result of the lockout being under the influence of management initiative.

WAGE GUIDELINES

Guidelines emanating from Ottawa designed in an attempt to insure wage increases that are congruent with the growth of the economy, usually communicated through the news media.

*These factors are commonly categorized as "wage criteria" and are typically overt representations of many of the other wage factors. The use of such factors as tools of collective bargaining should not be confused with their intrinsic influence on the wage decision. It is the true influence of the factor upon the decision that is to be considered rather than its strategic value.

GOVERNMENT INFLUENCE

Government can affect wage decisions through informal moral suasion or more directly, on a provincial basis, through the threat of injunctions or remedial legislation.

MINIMUM WAGE LEGISLATION

This factor, legislated through government, must be examined not only in light of its effect at lower levels of the firm but also in terms of how it may influence wage levels throughout the structure.

EXTERNAL SOCIAL PRESSURE (MANAGEMENT)

The pressure from peer groups (other firms) encouraging conformance to wage levels already determined in the region or industry.

WORKER MORALE

The effect that unreasonable demands by either party may have on employees' attitudes toward the employer or employee representative and hence his relationship with either.

INTRINSIC JOB WORTH

The relative value of each job, usually determined with the aid of some means of job evaluation. This factor represents the effect that level of work performed has on internal salary relationships regardless of rates for comparable jobs found within the labour market.

EXTERNAL SOCIAL PRESSURE (EMPLOYEES)

The threat of unions or other unions organizing employees currently organized by different representatives; in addition to the pressure from other labour organizations encouraging conformance to the wage levels already determined in the region or industry.

EMPLOYEE BARGAINING SKILL OR STRATEGY

The effect of the employee representative's skill in the negotiation of the wage structure and level.

MANAGEMENT BARGAINING SKILL OR STRATEGY

The effect of the management representative's skill in the negotiation of the wage structure and level.

EMPLOYEE-MANAGEMENT RELATIONS

The degree of mutual confidence based generally on past relations, often intertwined with each party's perception of the other's ethics and philosophies.

OTHER BENEFITS GAINED AT THE EXPENSE OF WAGES

Examples include such indirect financial payments as paid holidays, life insurance programs, and improved job security; as well as non-financial rewards such as job satisfaction, better working conditions, and training programs.

LIVING WAGE

A consideration of the "fairness" of the wage in relation to the ability of a worker or group of workers to maintain a desired standard of living. Not to be confused with minimum wage legislation.

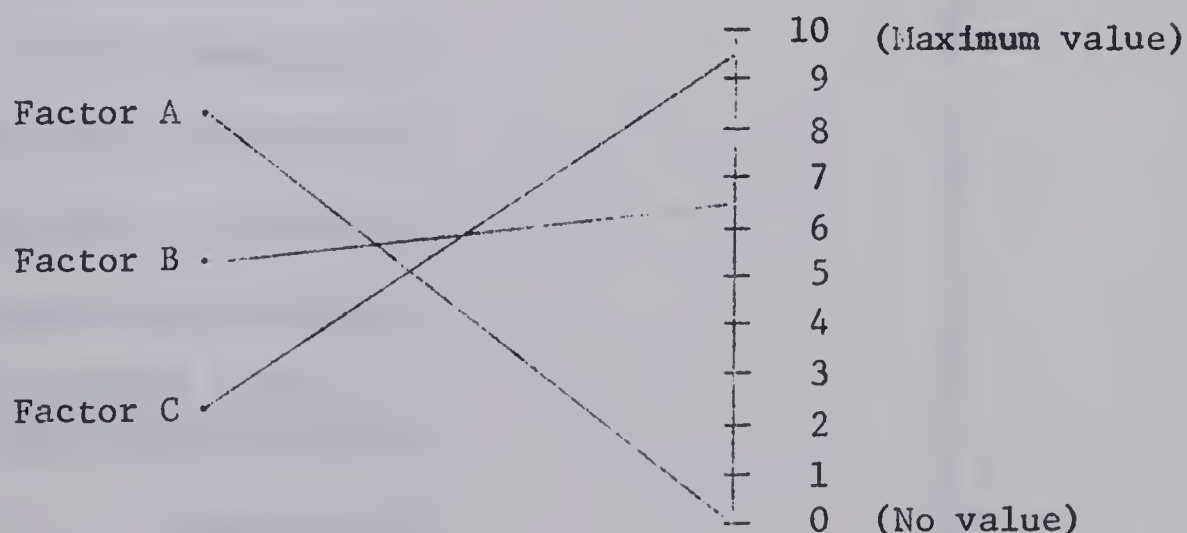
C. Rating Instructions

Each factor must be viewed in complete isolation from the remainder in terms of its influence on the wage decision, then rated relative to the other factors, each of which has also been considered independently. The reason for the necessity of using this approach is that many of the factors often interrelate and influence each other. For example, management or employee membership pressure may cause an emphasis to be placed on productivity changes that would not have otherwise existed. Such an influence should be interpreted in terms of its original source, either membership pressure, rather than the means of expressing it, productivity changes. It is the "real" influence of each factor on wage decisions that is important, not the relative importance of the factor as a means of justifying demands emanating from other sources or as a strategical tool.

It is also important to consider the wage decision process as a dynamic one. It commences with the development of the initial wage proposal, pervades discussions, and culminates in the final wage package. For example, initially labour market conditions may be the dominant force whereas public opinion may reach pre-eminence during final deliberations and become a key basis of the final decision. It is necessary to recognize the influence of both factors, not just one or the other depending upon the stage of proceedings. Only through considering the entire process can the true impact of each factor be determined.

D. Rating Sheet Instructions

The rater is requested to draw a line from each factor to any appropriate point on the value scale which represents his evaluation of the impact of the factor on his wage decisions. Selection of points between scale numbers is permitted and more than one factor may be assigned to a single position on the scale. Each factor must be rated. Failure to rate even one factor will negate the usefulness of the return. The following abbreviated rating sheet serves as an example of the rating technique.



Two rating sheets are provided. One copy is provided for rough work while the second serves as the final rating sheet, which is to be returned in the attached envelope.

Rating Sheet (working copy)

FACTORS INFLUENCING WAGE DECISIONS

VALUE SCALE

| | |
|---|-----------------------|
| ABILITY TO PAY . | 10 (MAXIMUM VALUE) |
| EMPLOYEE MEMBERSHIP PRESSURE . | |
| PRODUCTIVITY CHANGES . | 9 |
| MANAGEMENT MEMBERSHIP PRESSURE . | |
| PUBLIC OPINION . | 8 |
| EMPLOYEE LEADERSHIP INFLUENCE . | |
| COST OF LIVING CHANGES . | 7 |
| LABOUR MARKET CONDITIONS . | |
| MANAGEMENT LEADERSHIP INFLUENCE . | 6 |
| ABILITY TO STRIKE OR LOCKOUT OR RESIST A STRIKE OR LOCKOUT . | |
| WAGE GUIDELINES . | 5 |
| GOVERNMENT INFLUENCE . | |
| MINIMUM WAGE LEGISLATION . | 4 |
| EXTERNAL SOCIAL PRESSURE (MANAGEMENT) . | |
| WORKER MORALE . | |
| INTRINSIC JOB WORTH . | 3 |
| EXTERNAL SOCIAL PRESSURE (EMPLOYEES) . | |
| EMPLOYEE BARGAINING SKILL OR STRATEGY . | 2 |
| MANAGEMENT BARGAINING SKILL OR STRATEGY . | |
| EMPLOYEE-MANAGEMENT RELATIONS . | 1 |
| OTHER BENEFITS GAINED AT THE EXPENSE OF WAGES . | |
| LIVING WAGE . | 0 (NO VALUE) |

Rating Sheet

FACTORS INFLUENCING WAGE DECISIONS

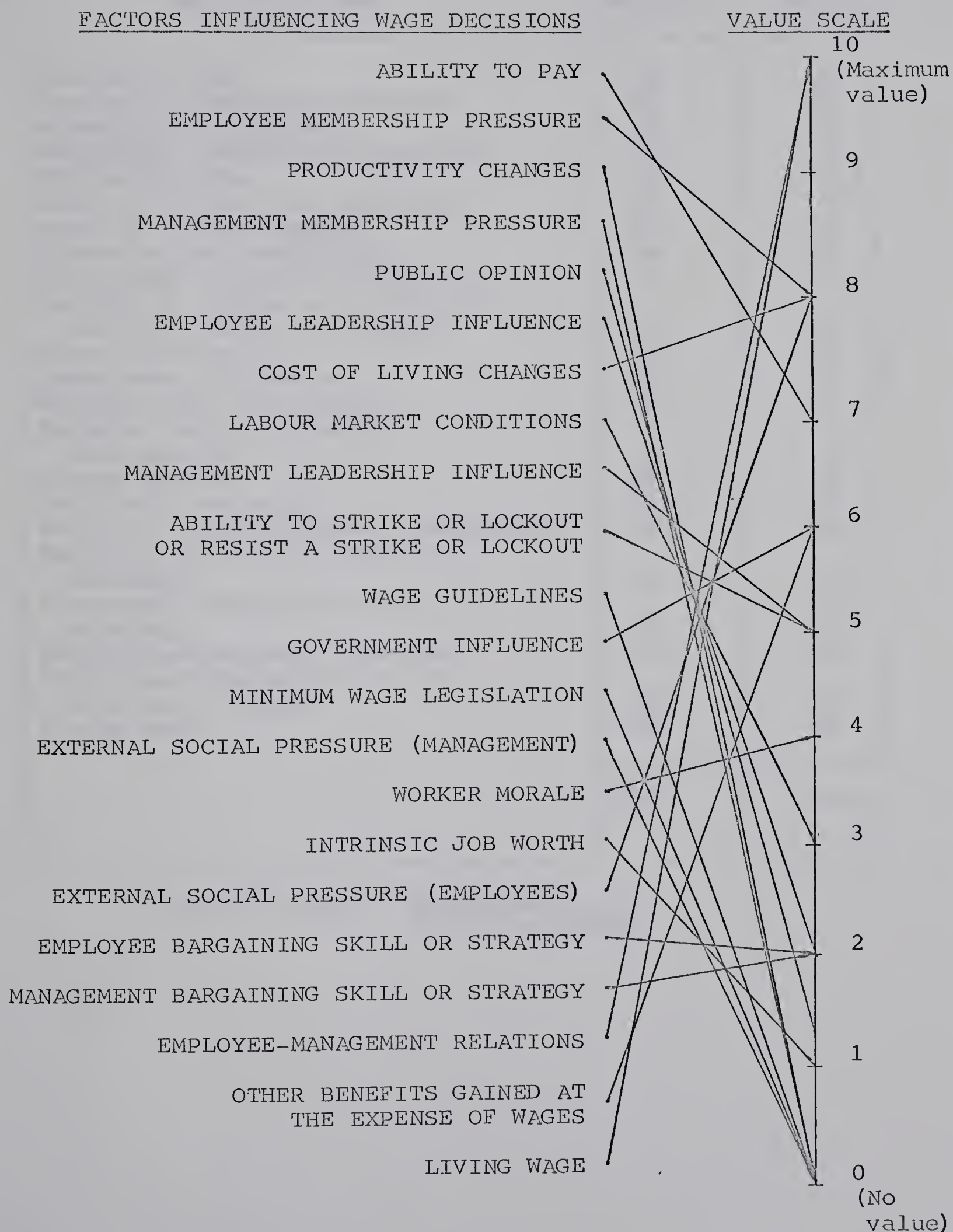
VALUE SCALE

| | |
|---|-----------------------|
| ABILITY TO PAY . | 10 (MAXIMUM VALUE) |
| EMPLOYEE MEMBERSHIP PRESSURE . | |
| PRODUCTIVITY CHANGES . | 9 |
| MANAGEMENT MEMBERSHIP PRESSURE . | |
| PUBLIC OPINION . | 8 |
| EMPLOYEE LEADERSHIP INFLUENCE . | |
| COST OF LIVING CHANGES . | 7 |
| LABOUR MARKET CONDITIONS . | |
| MANAGEMENT LEADERSHIP INFLUENCE . | 6 |
| ABILITY TO STRIKE OR LOCKOUT OR RESIST A STRIKE OR LOCKOUT . | |
| WAGE GUIDELINES . | 5 |
| GOVERNMENT INFLUENCE . | |
| MINIMUM WAGE LEGISLATION . | 4 |
| EXTERNAL SOCIAL PRESSURE (MANAGEMENT) . | |
| WORKER MORALE . | 3 |
| INTRINSIC JOB WORTH . | |
| EXTERNAL SOCIAL PRESSURE (EMPLOYEES) . | 2 |
| EMPLOYEE BARGAINING SKILL OR STRATEGY . | |
| MANAGEMENT BARGAINING SKILL OR STRATEGY . | 1 |
| EMPLOYEE-MANAGEMENT RELATIONS . | |
| OTHER BENEFITS GAINED AT THE EXPENSE OF WAGES . | 0 (NO VALUE) |
| LIVING WAGE . | |

APPENDIX B

DETERMINATION OF REFINED FACTOR WEIGHTS

Rating Sheet



DETERMINATION OF REFINED FACTOR WEIGHTS

| Factors influencing wage decisions | Refined weights* | Raw weights |
|--|------------------|-------------|
| Ability to pay | 79 | 14 |
| Employee membership pressure | 91 | 16 |
| Productivity changes | 0 | 0 |
| Management membership pressure | 0 | 0 |
| Public opinion | 13 | 2.3 |
| Employee leadership influence | 23 | 4 |
| Cost of living changes | 91 | 16 |
| Labour market conditions | 34 | 6 |
| Management leadership influence | 57 | 10 |
| Ability to strike or lockout or resist a strike or lockout | 57 | 10 |
| Wage guidelines | 0 | 0 |
| Government influence | 68 | 12 |
| Minimum wage legislation | 0 | 0 |
| External social pressure (management) | 0 | 0 |
| Worker morale | 48 | 8 |
| Intrinsic job worth | 11 | 2 |
| External social pressure (employees) | 91 | 16 |
| Employee bargaining skill or strategy | 23 | 4 |
| Management bargaining skill or strategy | 23 | 4 |
| Employee-management relations | 113 | 20 |
| Other benefits gained at the expense of wages | 68 | 12 |
| Living wage | 113 | 20 |
| | 1000 | 176.3 |

$$\text{*Refined weight} = \frac{\text{Raw weight}}{\text{Total raw weight}}$$

APPENDIX C

Formula used in calculating the product moment coefficient of correlation.

Source: Kenney and Keeping, Mathematics of Statistics, p. 258.

$$r = \frac{N \sum xy - \sum x \sum y}{\left[N \sum x^2 - (\sum x)^2 \right]^{1/2} \left[N \sum y^2 - (\sum y)^2 \right]^{1/2}}$$

Where x = refined management weight for each factor
and y = refined union weight for each factor

$$N = 22$$

Formula used in calculating the level of significance--the "t-test."

Source: Kenney and Keeping, Mathematics of Statistics, p. 266.

$$t = r \left(\frac{N - 2}{1 - r^2} \right)^{1/2}$$

$$df = N - 2 \text{ or } 20$$

When t 2.086, r is significant at or above the .05 level for the two-tailed test (Table II, p. 322 of Kenney and Keeping)

APPENDIX D

RELATIONSHIP BETWEEN STRIFE AND FACTOR
RATING CORRELATIONS

| Collective agreement | Strife measurement | Rank | Rating correlation | Rank | Difference | Difference ² |
|-------------------------|-----------------------|------|-----------------------|------|------------|-------------------------|
| 1 | 0 | 2 | .3799 | 11 | -9 | 81 |
| 2 | 8 | 11 | .3593 | 9 | 2 | 4 |
| 3 | 5 | 7 | .2749 | 7 | 0 | 0 |
| 4 | 2 | 5 | .3998 | 13 | -8 | 64 |
| 5 | 0 | 2 | .3901 | 12 | -10 | 100 |
| 6 | 2 | 5 | .3742 | 10 | -5 | 25 |
| 7 | 9 | 12.5 | .2702 | 6 | 6.5 | 42.25 |
| 8 | 0 | 2 | .5618 | 15 | -13 | 169 |
| 9 | 10 | 14.5 | .3558 | 8 | 6.5 | 42.25 |
| 10 | 2 | 5 | .1134 | 3 | 2 | 4 |
| 11 | 7 | 10 | .0702 | 2 | 8 | 64 |
| 12 | 9 | 12.5 | -.0980 | 1 | 11.5 | 132.25 |
| 13 | 6 | 8.5 | .4139 | 14 | -5.5 | 30.25 |
| 14 | 6 | 8.5 | .2166 | 4 | 4.5 | 20.25 |
| 15 | 10 | 14.5 | .2334 | 5 | 9.5 | 90.25 |
| | | 120 | | 120 | 0 | 868.5 |

Formula used in calculating the nonparametric coefficient of correlation (Spearman rank order coefficient of correlation with tie correction).

Source: Siegel, Nonparametric Statistics, p. 207.

$$r_s = \frac{\sum x^2 + \sum y^2 - \sum d^2}{2\sqrt{\sum x^2 \sum y^2}}$$

$$\text{Where } \sum x^2 = \frac{N^3 - N}{12} - \sum Tx \text{ and } \sum y^2 = \frac{N^3 - N}{12} - \sum Ty$$

$$T \text{ is the correction factor for ties: } T = \frac{t^3 - t}{12}$$

$$N = 15$$

Formula used in calculating the level of significance:
the "t-test"

Source: Siegel, Nonparametric Statistics, p. 212.

$$t = r_s \left(\frac{N - 2}{1 - r_s^2} \right)^{\frac{1}{2}}$$

$$df = N - 2 \text{ or } 13$$

When $t = 2.160$, r is significant at or above the .05 level for the two-tailed test (Table B, p. 248 of Siegel).

APPENDIX E

Calculation of the estimated standard deviation, skewness, and kurtosis for the unilateral and bilateral management factor weights.

Source: Kenney and Keeping, Mathematics of Statistics (as referenced).

UNILATERAL COMPOSITE FACTOR WEIGHTS

| Class limits | Middle class weights (x) | Number of factors (f) | (u) | (fu) | (fu ²) | (fu ³) | (fu ⁴) |
|--------------|--------------------------|-----------------------|-----|---------|--------------------|--------------------|--------------------|
| 0- 9 | 4.5 | 4 | -4 | -16 | 64 | -256 | 1024 |
| 10- 19 | 14.5 | 2 | -3 | - 6 | 18 | - 54 | 162 |
| 20- 29 | 24.5 | 4 | -2 | - 8 | 16 | - 32 | 64 |
| 30- 39 | 34.5 | 2 | -1 | - 2 | 2 | - 2 | 2 |
| 40- 49 | 44.5 | 1 | 0 | 0 | 0 | 0 | 0 |
| 50- 59 | 54.5 | 0 | 1 | 0 | 0 | 0 | 0 |
| 60- 69 | 64.5 | 3 | 2 | 6 | 12 | 24 | 48 |
| 70- 79 | 74.5 | 1 | 3 | 3 | 9 | 27 | 81 |
| 80- 89 | 84.5 | 2 | 4 | 8 | 32 | 128 | 512 |
| 90- 99 | 94.5 | 0 | 5 | 0 | 0 | 0 | 0 |
| 100-109 | 104.5 | 2 | 6 | 12 | 72 | 432 | 2592 |
| 110-119 | 114.5 | 1 | 7 | 7 | 49 | 343 | 2401 |
| Sums | | 22 | | 4 | 274 | 610 | 6886 |
| (Sums) /N | | | | .182 | 12.46 | 27.73 | 313.00 |
| | | | | m' 1, u | m' 2, u | m' 3, u | m' 4, u |

$X_o = 44.5$ (middle class weight at approximate middle of f)
(p. 48)

$C = 10$ (size of class interval)

$u = (x - 44.5)/10$

Moments about the mean

$m_{2,u} = m'_{2,u} - (m'_{1,u})^2 = 12.42$ (p. 95)

$m_{2,u} \text{ corrected} = \text{uncorrected } m_{2,u} - 1/12 = 12.34$ (p. 96)

$$m_{3,u} = m'_{3,u} - 3(m'_{2,u})(m'_{1,u}) + 2(m'_{1,u})^3 = 20.94 \quad (\text{p. 95})$$

$$\begin{aligned} m_{4,u} &= m'_{4,u} - 4(m'_{3,u})(m'_{1,u}) + 6(m'_{2,u})(m'_{1,u})^2 - 3(m'_{1,u})^4 \\ &= 295.28 \end{aligned}$$

$$\begin{aligned} m_{4,u} \text{ corrected} &= \text{uncorrected } m_{4,u} - 1/12 (\text{uncorrected } m_{2,u}) \\ &+ 7/240 = 289.10 \end{aligned} \quad (\text{p. 96})$$

Standard deviation

$$\text{Variance} = S_x^2 = m_{2,x} ; m_{2,x} = C^2 m_{2,u} \quad (\text{p. 94})$$

$$m_{2,x} = 1234$$

$$S.D. = S_x^2 = \underline{\underline{35.13}}$$

Skewness

$$g_1 = k_3/k_2^{3/2} \quad (\text{p. 101})$$

$$k_2 = NS_x^2/(N-1) = Nm_{2,u}/(N-1) = 12.93 \quad (\text{p. 100})$$

$$k_3 = N^2 m_{3,u}/(N-1)(N-2) = 24.13$$

$$\text{Therefore } g_1 = \underline{\underline{.498}}$$

Kurtosis

$$g_2 = k_4/k_2^2 \quad (\text{p. 103})$$

$$k_4 = N^2 [(N+1)m_{4,u} - 3(N-1)m_{2,u}^2] / (N-1)(N-2)(N-3) \quad (\text{p. 100})$$

$$\text{Therefore } g_2 = \underline{\underline{-1.068}}$$

BILATERAL COMPOSITE FACTOR WEIGHTS

| Class limits | Middle class weights (x) | Number of factors (f) | (u) | (fu) | (fu ²) | (fu ³) | (fu ⁴) |
|--------------|--------------------------|-----------------------|-----|-------------------|--------------------|--------------------|--------------------|
| 0- 9 | 4.5 | 1 | -4 | -6 | 16 | -64 | 256 |
| 10- 19 | 14.5 | 0 | -3 | 0 | 0 | 0 | 0 |
| 20- 29 | 24.5 | 3 | -2 | -6 | 12 | -24 | 48 |
| 30- 39 | 34.5 | 4 | -1 | -4 | 4 | -4 | 4 |
| 40- 49 | 44.5 | 3 | 0 | 0 | 0 | 0 | 0 |
| 50- 59 | 54.5 | 6 | 1 | 6 | 6 | 6 | 6 |
| 60- 69 | 64.5 | 4 | 2 | 8 | 16 | 32 | 64 |
| 70- 79 | 74.5 | 1 | 3 | 3 | 9 | 27 | 81 |
| 80- 89 | 84.5 | 0 | 4 | 0 | 0 | 0 | 0 |
| 90- 99 | 94.5 | 0 | 5 | 0 | 0 | 0 | 0 |
| 100-109 | 104.5 | 0 | 6 | 0 | 0 | 0 | 0 |
| 110-119 | 114.5 | 0 | 7 | 0 | 0 | 0 | 0 |
| Sums | | 22 | | 3 | 63 | -27 | 459 |
| (Sums) /N | | | | .136 | 2.86 | -1.23 | 20.86 |
| | | | | m' _{1,u} | m' _{2,u} | m' _{3,u} | m' _{4,u} |

$$X_o = 44.5$$

$$C = 10 \quad u = (x - 44.5)/10$$

Moments about the mean

$$m_{2,u} = 2.84$$

$$m_{2,u} \text{ corrected} = 2.76$$

$$m_{3,u} = -1.536$$

$$m_{4,u} = 21.844$$

$$m_{4,u} \text{ corrected} = 20.45$$

Standard deviation

$$S.D. = S_x^2 = \underline{\underline{16.61}}$$

Skewness

$$g_1 = k_3/k_2^{3/2}$$

$$k_2 = 2.89$$

$$k_3 = -1.77$$

$$\text{Therefore } g_1 = \underline{\underline{-.360}}$$

Kurtosis

$$g_2 = k_4/k_2^2$$

$$k_4 = -.589$$

$$\text{Therefore } g_2 = \underline{\underline{-.071}}$$

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